

System Glossary

Advanced System Control Architecture S22.02

-A-	
A/D	Analog-to-digital conversion.
A/V	Audio/Video or Audiovisual. This abbreviation is often used on the socketry of consumer equipment.
AAL	ATM adaptation layer. The AAL translates digital voice, images, video and data signals into the ATM cell format and vice versa. Five AALs are defined: AAL1 supports connection-oriented services needing constant bit-rates and specific timing and delay requirements (e.g. DS-3 circuit). AAL2 supports connection-oriented services needing variable bit-rates (e.g. certain video transmission schemes). AAL3/4 supports both connectionless and connection-oriented variable rate services. AAL5 supports connection-oriented variable bit-rate data services. Also known as Simple and Efficient Adaptation Layer (SEAL).
Access Control	A security function that enforces access policy based on such information as the requestor's identity, the attributes of the requestor, and the attributes of the service requested.
Access setup time	The amount of time taken to set up a transmission path between a source and a destination from the moment of commencing the connection process.
Adaptive predictor	A predictor whose estimating function is made variable according to the short-term spectral characteristics of the sampled signal. For ADPCM in particular, an adaptive predictor is a time-varying process that computes an estimate of the input signal from the quantized difference signal.
Address Translation	The process of converting external addresses into standardized network addresses and vice versa. It facilitates the interconnection of multiple networks in which each have their own addressing scheme.
ADPCM	Adaptive Differential Pulse Code Modulation. A compression algorithm that achieve bit-rate reduction through the use of adaptive prediction and adaptive quantization.
Analog (video) signal	A (video) signal, one of whose characteristic quantities follows continuously the variations of another physical quantity representing information.
Analog transmission	A type of transmission in which a continuously variable signal encodes an infinite number of values for the information being sent (compare with "digital").
Anisochronous	The 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 shortest duration.
API	Application Programming Interface. A set of interface definitions (functions, subroutines, data structures or class descriptions) which together provide a convenient interface to the functions of a subsystem and which insulate the application from the minutiae of the implementation.
Application	A computer program designed to perform a certain type of work. An application can manipulate text, numbers, graphics or a combination of these elements. An application differs from an operating system (which runs a computer), a utility (which performs maintenance or general-purpose chores) and a programming language (with which computer programs are created).
Application layer	The seventh and highest layer in the International Organization for Standardization's Open Systems Interconnection (OSI) model. The application layer contains the signals sent during interaction between the user and application, and that perform useful work for the user, such as file transfer.
Asset	An Asset is any material that can be exploited by a broadcaster or service provider. An asset could therefore be a complete programme file, or it could be a part of a programme, individual sound, images etc.
Asset transfer	The transfer of an Asset from one location to another.
Asynchronous transmission	A term used to describe any transmission technique that does not require a common clock between the two communicating devices, but instead derives timing signals from special bits or characters (e.g. start/stop bits, flag characters) in the data stream itself.

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	The essential characteristic of time-scales or signals such that their corresponding significant instants do not necessarily occur at the same average rate.
ATM	Asynchronous Transfer Mode. A form of digital transmission based on the transfer of units of information known as cells. It is suitable for the transmission of images, voice, video, and data.
ATM Layer	The protocol layer that relays cells from one ATM node to another. It handles most of the processing and routing activities including: each cell's ATM header, cell muxing/demuxing, header validation, payload-type identification, Quality of Service specification, prioritization and flow control.
Authentication	A security function that provides the verified identity of a service requestor.
-B-	
Back channel	The segment of a two-way communications system that flows from the consumer back to the Content provider, or to a system component, to provide feedback.
Backbone	The top level in a hierarchical network.
Bandwidth	The frequency range of an electromagnetic signal, measured in hertz (cycles per second). The term has come to refer more generally to the capacity of a channel to carry information, as measured in data transferred per second. Transfer of digital data, for example, is measured in bits per second.
Bandwidth reservation	The process of setting aside bandwidth on a specific broadcast channel for a specific data transmission. A Content server application reserves bandwidth on a Microsoft Broadcast Router by calling the <code>msbdrReserveBandwidth</code> function. This function forwards the request to a Microsoft® Bandwidth Reservation Server. The server returns a unique reservation identifier if the bandwidth can be reserved.
Baseband	Describes transmissions using the entire spectrum as one channel. Alternatively, baseband describes a communication system in which only one signal is carried at any time. An example of the latter is a composite video signal that is not modulated to a particular television channel.
Baud	Number of symbols per second, a measure of data-transmission speed. Baud was originally used to measure the transmission speed of telegraph equipment but now most commonly measures modem speeds. The measurement is named after the French engineer and telegrapher, Jean Maurice-Emile Baudot.
BER	Bit Error Ratio (or Rate).
B-frame	MPEG-2 B-frames use bi-directionally-interpolated motion prediction to allow the decoder to rebuild a frame that is located between two reconstructed display frames. Effectively the B-frame uses both past frames and future frames to make its predictions. B-frames are not used as reference frames but for further predictions. However, they require more than two frames of video storage in the decoder, which can be a disadvantage in systems where low cost is of the essence. By using bi-directional prediction, B-frames can be coded more efficiently than P-frames, allowing a reduction in video bit-rate whilst maintaining subjective video quality.
Bit	A member selected from a binary set. "Bit" is a contraction of "binary digit".
Broadband	A service or system requiring transmission channels capable of supporting rates greater than the Integrated Services Digital Network (ISDN) primary rate (1.544 Mbit/s (e.g. USA) or 2.048 Mbit/s (e.g. Europe)). Broadband is also sometimes used to describe high-speed networks in general.
Broadcast	In general terms, a transmission sent simultaneously to more than one recipient. There is a version of broadcasting used on the Internet known as multicast. In multicast, each transmission is assigned its own Internet Protocol (IP) multicast address, allowing clients to filter incoming data for specific packets of interest.
Broadcast (Messages)	Transmissions sent to all stations (or nodes, or devices) attached to the network.
Broadcast Router	A component that enables a Content server to send a data stream to a multiplexer or other broadcast output device. A Broadcast Router calls a virtual interface to transmit a stream at the appropriate rate and in the appropriate packet format.
Broadcaster (Service Provider)	An organization which assembles a sequence of events or programs to be delivered to the viewer based upon a schedule.
Buffer	An area of storage that provides an uninterrupted flow of data between two computing devices.

BWF	Broadcast Wave File. The EBU has defined a file format which contains the minimum information that is considered necessary for all broadcast applications. The basic information, together with the audio data, is organized as "Broadcast Wave Format" (BWF) files. From these files, using an object-oriented approach, a higher level descriptor can be used to reference other files containing more complex sets of information which can be assembled for the different specialized kinds of applications.
-C-	
CBO	Continuous Bit-stream Oriented. Services which require an ordered and uninterrupted sequence of data to represent them. PCM-coded video is an example of a CBO service.
CBR	Constant bit rate. A type of traffic that requires a continuous, specific amount of bandwidth (e.g. digital information such as video and digitized voice).
Cell	A transmission unit of fixed length, used in cell relay transmission techniques such as ATM. An ATM cell is made up of 53 bytes (octets) including a 5-byte header and a 48-byte data payload.
Cell Relay	Any transmission technique that uses packets of a fixed length. ATM, for example, is a version of cell relay using 53-byte cells. Other versions use cells of a different length.
Channel	A means of unidirectional transmission of signals between two points.
Chip-set	Several integrated circuits (ICs) which work together to perform a dedicated task. Subsequent development of the chip-set usually decreases the number of ICs needed, and often a single IC implementation is achieved.
Chroma	The color portion of the video signal that includes hue and saturation information. Hue refers to a tint or shade of color. Saturation indicates the degree to which the color is diluted by luminance or illumination.
Chunking	The process of "chunking" converts a large file into two or more smaller ones.
Circuit Switching	A switching technique in which a dedicated path is set up between the transmitting device and the receiving device, remaining in place for the duration of the connection (e.g. a telephone call is a circuit-switched connection).
Class	In general terms, a category. In programming languages, a class is a means of defining the structure of one or more objects.
Class Driver	A standard driver provided with the operating system that provides hardware-independent support for a given class of devices. Such a driver communicates with a corresponding hardware-dependent minidriver, using a set of device control requests defined by the operating system. These requests are specific to the particular device class. A class driver can also define additional device control requests itself. A class driver provides an interface between a minidriver and the operating system.
Client	Generally, one of a group of computers that receive shared information sent by a computer called a server over a broadcast or point-to-point network. The term client can also apply to a software process, such as an Automation client, that similarly requests information from a server process and that appears on the same computer as that server process, or even within the same application.
Clock	Equipment that provides a timing signal.
Closed Captioning	Real-time, written annotation of the currently displayed audio Content. Closed Captioning – mainly used in 525-line countries – usually provides subtitle information to hearing-impaired viewers or to speakers of a language other than that on the audio track.
Codec	A combination of an encoder and a decoder in the same equipment.
COM	Component Object Model. An object-oriented programming model for building software applications made up of modular components. COM allows different software modules, written without information about each other, to work together as a single application. COM enables software components to access software services provided by other components, regardless of whether they involve local function calls, operating system calls or network communications.
Communication services	A set of functions that provides for higher order communication services that are built upon the services available at the transport.
Component	See Device.
Component (Elementary Stream)	One or more entities which collectively make up an event, e.g. video, audio, teletext.
Compression	The process of reducing the number of bits required to represent information, by removing redundancy. In the case of information Content such as video and audio it is usually necessary to extend this process by removing, in addition, information that is not redundant but is considered less important. Compression techniques that are used include: blanking suppression, DPCM, sub-Nyquist sampling, transform coding, statistical coding, sub-band coding, vector coding, run length coding, variable length coding, fractal coding and wavelet coding.

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Confidentiality	A security function that provides privacy in the communication and storage of information.
Configuration services	A set of functions within the system's layer that enable the configuration of objects within the planes of the management system.
Configuration templates	A support function within the configuration service, also called "pre-sets," used to enable an object to load a desired state (or partial state) from a pre-determined set when commanded.
Connectionless	A type of communication in which no fixed path exists between a sender and receiver, even during a transmission (e.g. packet switching). Shared media LANs are connectionless.
Connection-oriented	A type of communication in which an assigned path must exist between a sender and a receiver before a transmission occurs (e.g. circuit switching). ATM networks are connection-oriented.
Content	Programme Content can be <i>Video Essence</i> , <i>Audio Essence</i> , <i>Data Essence</i> and <i>Metadata</i> . Content can therefore include television programming, data and software applications.
Content manager	It is responsible for registering, tracking and allocating content assets within the studio.
Content plane	It is the locus of all the "higher level" applications functions ("business" applications) in the studio and of the first line of support for these applications.
Content provider	A person or company delivering broadcast Content.
CORBA	Common Object Request Broker Architecture. An architecture and specification for creating, distributing, and managing distributed program objects in a network
CPU	Central Processing Unit. In a personal computer, the CPU is the microprocessor which is the computer.
CRC	Cyclic Redundancy Check. A common technique for detecting errors in data transmission. In CRC error checking, the sending device calculates a number based on the data transmitted. The receiving device repeats the same calculation after transmission. If both devices obtain the same result, it is assumed the transmission was error-free. The procedure is known as a redundancy check because each transmission includes not only data but additional, redundant values for error checking.
CVD	Cell Delay Variation. A measurement of the allowable variation in delay between the reception of one cell and the next, usually expressed in thousandths of a second, or milliseconds (ms). Important in the transmission of voice and video traffic, CDV measurements determine whether or not cells are arriving at the far end too late to reconstruct a valid packet.
-D-	
D/A	Digital-to-analog conversion.
Data Link layer	The second of the seven layers in the International Organization for Standardization's Open Systems Interconnection (OSI) model for standardizing communications. The data link layer is one level above the physical layer. It is involved in packaging and addressing information and in controlling the flow of separate transmissions over communications lines. The data link layer is the lowest of the three layers (data link, network and transport) that help to move information from one device to another. There is also a Data Link layer in the EBU / SMPTE four-layer object model.
Data service	A mechanism offered by a service provider for sending broadcast data to broadcast clients. Such data can include Programme Guide information, World Wide Web pages, software and other digital information. The data service mechanism can be any broadcast process.
Data streaming	The data broadcast specification profile for data streaming supports data broadcast services that require a streaming-oriented, end-to-end delivery of data in either an asynchronous, synchronous or synchronized way through broadcast networks. Data which is broadcast according to the data streaming specification is carried in Programme Elementary Stream (PES) packets which are defined in MPEG-2 Systems. Asynchronous data streaming is defined as the streaming of only data without any timing requirements (e.g. RS-232 data). Synchronous data streaming is defined as the streaming of data with timing requirements in the sense that the data and clock can be regenerated at the receiver into a synchronous data stream (e.g. E1, T1). Synchronized data streaming is defined as the streaming of data with timing requirements in the sense that the data within the stream can be played back in synchronization with other kinds of data streams (e.g. audio, video).
Datagram	One packet of information and associated delivery information, such as the destination address, that is routed through a packet-switching network. In a packet-switching network, data packets are routed independently of each other and may follow different

	routes and arrive in a different order from which they were sent. An Internet Protocol (IP) multicast packet is an example of a datagram.
DAVIC	Digital Audio Visual Council. DAVIC has been convened along similar lines to MPEG but with no affiliation to a standards body; it therefore has the status of a world-wide industry consortium. Its purpose is to augment MPEG and to collect system specifications for the delivery of a range of audio-visual services which can be applied uniformly on a world-wide basis.
DCT	Discrete Cosine Transform. A DCT process basically involves dividing the picture up into 8 x 8 pixel blocks, then replacing the discrete luminance and chrominance values of each pixel by the amplitudes of the corresponding frequency components for the horizontal and vertical directions respectively. In this way, the information is transformed from the time domain to the frequency domain. No information is lost in this process, except perhaps by the rounding of the last digit of the frequency coefficient values.
Delay	A measurement of time (in units of Duration) that reflect delays encountered by bitstreams as they pass through devices. E.g. Transmission Delay.
Delivery system	The physical medium by which one or more multiplexes are transmitted, e.g. a satellite system, wide-band coaxial cable, fiber optics, terrestrial channel of one emitting point.
DEMUX	Demultiplexer. A device that performs the complementary operation to that of a multiplexer.
Descrambler	A device that performs the complementary operation to that of a scrambler.
Device	A hardware component in the studio that participates in command and control activities in studio. In particular, all media servers are devices, all tape decks are devices, encoders and decoders are devices, cameras and monitors are devices, etc. A device will have associated with it a corresponding software object derived from a generic device class (the Device class). The software object provides a controllable interface for the generic functions of the associated hardware device. An example device might be a digital camera. Within the studio there will exist an object derived from the Device class which corresponds to the attributes and controllable functions of the camera. A device may have a number of communication device ports.
Device class	A group into which devices are placed for the purposes of installing and managing device drivers, and for allocating resources.
Device driver	A software component that allows an operating system to communicate with one or more specific hardware devices attached to a computer.
Device object	A programming object used to represent a physical, logical or virtual hardware device whose device driver has been loaded into the operating system.
Device plane	Represents the collection of objects that implement the interfaces used to access equipment throughout the studio.
DevicePort	A hardware port on a device used to transport data. In particular, communications ports that are used to pass audio and video data between studio components are considered device ports. A device port will have associated with it a corresponding device port object derived from a generic device port class (the DevicePort class). An example device port might be a SMPTE 259 port or an ATM interface card that contains a single OC-12 SONET interconnection which is able to support many virtual channels. The DevicePort class provides a mechanism to advertise and modify controllable functions of a device port. A device may contain several device ports (several interface cards or a single card with several ports on it).
DIF	Digital interface. All the DV-based compression schemes share the so-called DIF structure which is defined in the "Blue Book" (IEC 61834).
Digital (transmission) channel	The means of unidirectional digital transmission of digital signals between two points.
Digital connection	A concatenation of digital transmission channels, switching and other functional units, set up to provide for the transfer of digital signals between two or more points in a network, in support of a single communication.
Digital demultiplexing	The separation of a (larger) digital signal into its constituent digital channels.
Digital multiplexing	A form of time-division-multiplexing applied to digital channels by which several digital signals are combined into a single (larger) digital signal.
Digital signal	A discretely-timed signal in which information is represented by a number of well-defined discrete values that one of its characteristic quantities may take in time.
Digital transmission	The transmission of digital signals by means of a channel or channels that may assume, in time, any one of a defined set of discrete states.
Digital-S	Matsushita trademark. This tape system is based on DV technology, and has a data-rate of 50 Mbit/s.
Downstream	One-way data flow from the head-end to the broadcast client.

DPCM	Differential Pulse Code Modulation. A process in which a signal is sampled, and the difference between each sample of this signal and its estimated value is quantized and converted by encoding to a digital signal.
DSP	Digital signal processor.
DTS	Data Time Stamp.
DV	Digital Video. A digital videotape format originally conceived for consumer applications.
DVB	Digital Video Broadcasting.
DVB-C	DVB framing structure, channel coding and modulation scheme for cable systems (EN 300 429).
DVB-S	DVB baseline system for digital satellite television (EN 300 421).
DVB-T	DVB baseline system for digital terrestrial television (EN 300 744).
DVC	Digital Video Cassette.
DVCPRO, DVCPRO50	Matsushita trademarks. Based on DV technology and having a data-rate of 25 Mbit/s and 50 Mbit/s respectively.
DVD	Digital Versatile (Video) Disk.
Dynamic Discovery	An automated process whereby the existence and capabilities of a particular interface are made known to other system components. The process may involve polling, registration or the effective use of static tables.
-E-	
EBU	European Broadcasting Union. Headquartered in Geneva, Switzerland, the EBU is the world's largest professional association of national broadcasters. Following a merger on 1 January 1993 with the International Radio and Television Organization (OIRT) – the former association of Socialist Bloc broadcasters – the expanded EBU has 66 active members in 49 European and Mediterranean countries, and 51 associate members in 30 countries elsewhere in Africa, the Americas and Asia.
ECM	Entitlement Control Message.
End-to-End Delay	End-to-end delay is the sum of the transfer delays and transmission delays in a path from a source StreamNode through a number of intermediate Studio Components to a destination StreamNode. The sum includes the transfer delays associated with the source and destination StreamNodes.
Enhancement	A multimedia element, such as a hypertext link to a World Wide Web page, a graphic, a text frame, a sound or an animated sequence, added to a broadcast show or other video programme. Many such elements are based on Hypertext Markup Language (HTML).
EPG	Electronic Programme Guide.
Error ratio [error rate]	The ratio of the number of digital errors received in a specified period to the total number of digits received in the same period.
Error, digital error	An inconsistency between a digit in a transmitted digital signal and the corresponding digit in the received digital signal.
ESCR	Elementary Stream Clock Reference.
Essence	See content.
ETR	ETSI Technical Report.
ETS	European Telecommunication Standard.
ETSI	European Telecommunications Standards Institute.
Event Channel	A CORBA object which distributes messages, as a means to announce the occurrence of events. As employed in DS-CC, it does this with a push methodology. It accepts subscriptions (registrations) from objects which wish to receive the messages, and will distribute to these subscribers, via a Notify operation, any messages set to it (also via a Notify). In the case where an object is both an Event Channel and something else (such as a Device), it may also distribute to subscribers messages which it originates internally.
Event handle	A token or string that is used to refer to a particular event. Event handles are provided to suppliers or event channels so that upon receipt of a particular event an event notification can be issued to registered objects.
Event members	A collection of objects that share an interest in a particular event. These objects typically register their interest with an event channel or with an event producer.
-F-	
Factory	A software object which is available in the CORBA name space and whose purpose is to create other objects. Three factories that all components possess are the Device, Stream and StreamNode factories
FEC	Forward error correction. A system of error correction that incorporates redundancy into data so that transmission errors can, in many cases, be corrected without requiring retransmission.

Field	In broadcast television, one of two sets of alternating lines in an interlaced video frame. In one field, the odd-numbered lines of video are drawn on the screen; in the other, the even-numbered lines are drawn. When interlaced, the two fields combine to form a single frame of on-screen video.
File	An organized collection of related records, accessible from a storage device via an assigned address. The relationship between the records and the file may be that of common purpose, format or data source, and the records may or may not be sequenced.
Frame	(a) In broadcast television, a single screen-sized image that can be displayed in sequence with other slightly different images to animate drawings. In the case of NTSC video, a video frame consists of two interlaced fields of 525 lines; NTSC video runs at 30 frames per second. In the case of PAL or SECAM video, a video frame consists of two interlaced fields of 625 lines; PAL and SECAM video run at 25 frames per second. By way of comparison, film runs at 24 frames per second. (b) Variable-length packet of data used by traditional LANs such as Ethernet and Token Ring, as well as WAN services such as X.25 or Frame Relay. An edge switch will take frames and divide them into fixed-length cells using an AAL format. A destination edge switch will take the cells and reconstitute them into frames for final delivery.
FTP	File Transfer Protocol. A protocol that supports file transfers to and from remote systems on a network using Transmission Control Protocol / Internet Protocol (TCP/IP), such as the Internet. FTP supports several commands that allow the bi-directional transfer of binary and ASCII files between systems.
FTP+	FTP+ is an enhanced version of FTP, and uses the same base set of commands. FTP+ includes new commands that enable traditional features and which also provide the ability to embrace network protocols other than IP.
-G-	
Gbit/s	Gigabit per second. A digital transmission speed of billions of (i.e. 10^9) bits per second.
Genre	A category of broadcast programs, typically related by style, theme or format, e.g. TV movies or television series.
GoP	Group of Pictures. An MPEG-2 GoP begins with an I-frame and extends to the last frame before the next I-frame. The GoP sequence is known as an open GoP – the last frame in the GoP uses the first frame of the next GoP as a reference. Another type of GoP is a closed GoP, which has no prediction links to the next GoP and, by definition, always ends in a P-frame.
GSM	Global System for Mobile communication.
Guaranteed bandwidth	Bandwidth that is reserved only if the requested bandwidth is available for the requested period. Once reserved, such bandwidth can be relied upon to be available.
-H-	
HDTV	High Definition TeleVision. Television that is delivered at a higher screen resolution than that of NTSC, PAL or SECAM.
Head-end	The origin of signals in a terrestrial, cable, satellite or network broadcast system. In Broadcast Architecture, the server infrastructure that gathers, coordinates and broadcasts data is generally located at the broadcast head-end.
HEX	Hexadecimal. A numbering system with a base of 16 (binary numbers have a base of 2, and decimal numbers have a base of 10). In HEX notation, the decimal numbers 0 to 9 are extended by the addition of the uppercase letters A to F, i.e. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F (which is equivalent to the numbers 0 to 15 in decimal notation).
Host	A device where one or more modules can be connected, e.g. a VTR, a PC ...
HTML	Hypertext Mark-up Language. A mark-up language used to create hypertext documents that are portable from one platform to another. HTML files are text files with embedded codes, or mark-up tags, that indicate formatting and hypertext links. HTML is used for formatting documents on the World Wide Web.
HTTP	Hypertext Transport Protocol. The underlying, application-level protocol by which World Wide Web clients and servers communicate on the Internet.
-I-	
ID	Identifier

Identification service	A service that employs a unified naming context for purpose of uniquely identifying each studio components (e.g. devices.)
IDL	Interface Definition Language. Used to describe interfaces that client objects call and object implementations provide. It is a purely descriptive language which has mappings provided for several programming languages such as C++, C and Java. It has the same lexical rules as C++.
IEC	International Electrotechnical Commission. Based in Geneva, the IEC is the world organization that prepares and publishes international standards for all electrical, electronic and related technologies.
IEEE	(US) Institute of Electrical and Electronic Engineers. The world's largest technical professional society, with more than 320,000 members. The technical objectives of the IEEE focus on advancing the theory and practice of electrical, electronic and computer engineering, and computer science.
IETF	Internet Engineering Task Force. The IETF is a large open international community of network designers, operators, vendors and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet. It is open to any interested individual.
I-Frame	Intra-coded Frame. I-frame pictures make use only of information already contained within that frame. They are not dependent on other frames and can act as the starting point to enable decoders to begin working on a <i>GoP</i> containing a sequence of other types of frame. The amount of compression achievable is typically less than for the other types of frame.
IIOIP	Internet Inter-ORB Protocol. See ORB.
Integrity	A security function that verifies that communication and storage of information was unmodified.
Interactive television	The interactive combination of a video programme and multimedia enhancement elements such as hypertext links, graphics, text frames, sounds and animation.
Interface	The common boundary point where two elements connect so that they can work with one another. In computing, the connection between an application and an operating system or between an application and a user (the user interface) are examples of an interface. In C++ programming, an interface is a collection of related methods exposed by a given class of objects. These methods are procedures that can be performed on or by those objects.
Interface element	A uniquely addressable portion of an interface. The complete interface specifies all the attributes and operations required to control the underlying hardware/software component as described by the interface description.
Interlacing	A video display technique, used in current analog televisions, in which the electron beam refreshes (updates) all odd-numbered scan lines in one field and all even-numbered scan lines in the next. Interlacing takes advantage of both the screen phosphor's ability to maintain an image for a short time before fading and the human eye's tendency to average subtle differences in light intensity. By refreshing alternate lines, interlacing halves the number of lines to update in one screen sweep. An alternative video display technique, used in computer monitors, is progressive scanning. In progressive scanning, the image is refreshed one line at a time.
Internet	Generically, a collection of networks interconnected with routers. "The Internet" is the largest such collection in the world. It has a three-level hierarchy composed of backbone networks, mid-level networks and stub networks.
IOR	Interoperable Object Reference.
IP	Internet Protocol. The primary network layer of Internet communication, responsible for addressing and routing packets over the network. IP provides a best-effort, connectionless delivery system that does not guarantee that packets arrive at their destination or that they are received in the sequence in which they were sent.
IP Address	An identifier for a network node; expressed as four fields separated by decimal points (e.g. 136.19.0.5.); IP address is site-dependent and assigned by a network administrator.
IPCP	Internet Protocol Control Protocol.
IP-over-ATM	The adaptation of TCP/IP and its address resolution protocol for transmission over an ATM network. It is defined by the IETF in RFCs 1483 and 1577. It puts IP packets and ARP requests directly into protocol data units and converts them to ATM cells. This is necessary because IP does not recognize conventional MAC-layer protocols, such as those generated on an Ethernet LAN.
IS	Interactive Service.
ISDN	Integrated Services Digital Network. A type of dial-up service. Data can be transmitted over ISDN lines at speeds of 64 or 128 kbit/s, whereas standard phone lines generally

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	limit modems to top speeds of 20 to 30 kbit/s.
ISO	International Organization for Standardization, based in Geneva.
Isochronous	A term used to describe signal-timing techniques that require a uniform reference point (usually embedded in the data signal).
ITU	International Telecommunication Union, part of the United Nations, based in Geneva.
-J-	
Java	An object-oriented, platform-independent computer programming language developed by Sun Microsystems. The Applet subclass of Java can be used to create Internet applications.
JDBC	It is an application program interface (API) specification for connecting programs written in Java to the data in popular databases.
Jitter	Short-term non-cumulative variations of the significant instants of a digital signal from their ideal positions in time.
Jitter, delay, latency	See <i>Latency</i> .
-K-	
kbit/s	kilobits per second. A digital transmission speed expressed in thousand of bits per second.
-L-	
LAN	Local Area Network. A network dispersed over a relatively limited area and connected by a communications link that enables each device on the network to interact with any other.
LAN Emulation	The process of implementing enough of the media access control layer protocol of a LAN (e.g. Ethernet or Token Ring) to allow existing higher layer protocols (and applications) to be used unchanged over another network, such as an ATM network.
Latency	A measurement of time delay (in units of Duration) inherent in a manipulative process. In particular, the time that it takes to process an input bitstream through a compression and decompression process. Buffering and transmission can be major contributors to processing delays. Latency can also reflect delays associated with the configuration of devices in preparation for their use.
Layer	Layers exist as the foundation on which component planes are built. They provide a homogeneous set of functions that facilitate the transport of control information throughout the network.
Legacy Device	A legacy device (or legacy component) is one that participates in the studio but was not originally architected for it. Typically, a legacy device will be represented in the object space by a proxy device object (see Proxy Object) or will be attached to a custom interface that provides this level of functionality.
Length	Length is the duration that the media source takes to display at normal play rate. This corresponds to the number of frames times the frame rate (for each segment in the media source with a particular frame rate).
Library Server	A class of studio objects that provide a common set of library services.
Library Service	Services provided by library server objects that keep track of all broadcast contents in a studio and the units of physical storage the contents reside.
Link	Any physical connection on a network between two separate devices, such as an ATM switch and its associated end point or end station.
Log on	To provide a user name and password that identifies you to a computer network.
LSB	Least Significant Bit. In any related grouping of bits (i.e. a <i>word</i>), there will be one which quantifies the zeroth power of 2 (i.e. the value is 0 or 1). This bit is the LSB of the word.
Luminance	A measure of the degree of brightness or illumination radiated by a given source. Alternatively, the perceived brightness component of a given color, as opposed to its chroma.
-M-	
MAA	MPEG ATM Adaptation.
MAC	Media Access Control.
MAN	Metropolitan area network.
Master clock	A clock that is used to control the frequency of other clocks.
Mbit/s	Megabits per second. A digital transmission speed expressed in millions of bits per second.
MBONE	Multicast backbone. A virtual, multicast-enabled network that works on top of the Internet. The most popular application for the MBONE is video conferencing, including audio, video and whiteboard conferencing. However, the essential technology of the MBONE is simply multicast – there is no special support for continuous media such as audio and video. The MBONE has been set up and maintained on a co-operative,

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	volunteer basis.
Media Server	A hardware component that is able to store and subsequently deliver audio/video data upon command. The NIST program defines three Media Servers: the Play-To-Air Server, the Network Server and the ProductionServer. A media server will have associated with it a corresponding media server factory derived from the Device class. The media server factory provides instances of the media server to clients that request them. Each media server object provides an interface to access the files and services that are available from the media server.
Media Transmission Time	Transmission Time is the duration that a media source takes to stream at normal play rate, regardless of the number of frames and/or frame rate. This number may differ from the length attribute which corresponds to display time only. The transmission time may be more or less than the length. E.g. a single I frame may take more than one frame time to transmit.
Metadata	Data describing other data.
Metadata Dictionary	The output of the SMPTE PT20.07 committee, consisting of a hierarchical classification scheme for program material metadata.
MIB	Management Information Base.
MIME	Multipurpose Internet Mail Extensions.
MJD	Modified Julian Date.
MMDS	Microwave Multi-point Distribution Systems (or Multichannel Multi-point Distribution Systems). Also known as wireless cable.
MMI	Man Machine Interface. The MMI of a door is its doorknob. That of a PC is a combination of keyboard, mouse and monitor.
Module	A small device, not working by itself, designed to run specialized tasks in association with a host – for example, a conditional access sub system, or an electronic programme guide application module – or to provide resources required by an application but not provided directly by the host
MPEG	Motion Picture Experts Group. MPEG-1 is a standard designed for video playback from CD-ROM. It provides video and audio compression at rates up to 1.8 Mbit/s. MPEG-2 refers to the ISO/IEC 13818 standard, and it provides higher video resolutions and interlacing for broadcast television and high-definition television (HDTV). Both standards were created by the Motion Pictures Experts Group, an International Standards Organization / International Telegraph and Telephone Consultative Committee (ISO/CCITT) group set up to develop motion video compression standards. The MPEG system makes use of three different types of compressed video frames, (I, P and B frames), which are stored so as to enable temporal prediction of missing or incomplete frames as received by the decoder.
MPEG TS	MPEG Transport Stream.
MPI	MPEG Physical Interface.
MPLS	Multi-protocol Label Swapping.
MSB	Most Significant Bit. In any related grouping of bits (i.e. a <i>word</i>), there will be one which quantifies the largest power of 2. This bit is the MSB of the word.
MTU	Multiprot Transceiver Unit.
Multicast	A point-to-many networking model in which a packet is sent to a specific address, and only those computers that are set to receive information from this address receive the packet. On the Internet, the possible IP multicast addresses range from 224.0.0.0 through 239.255.255.255. Computer networks typically use a unicast model, in which a different version of the same packet is sent to each address that must receive it. The multicast model greatly reduces traffic and increases efficiency on such networks.
Multicast Messages	A subset of "broadcast" in which a transmission is sent to all members of a pre-defined group of stations, nodes or devices.
Multimedia	Online material that combines text and graphics with sound, animation or video, or some combination of the three.
Multipoint	Generally encountered in the term "point-to-multipoint" which describes a broadcast topography.
MUX	Multiplex or multiplexer. A stream of all the digital data carrying one or more services within a single physical channel. In general terms, a multiplexer is a device for funneling several different streams of data over a common communications line. In the case of broadcasting, a multiplexer combines multiple television channels and data streams into a single broadcast.
MVDS	Multipoint Video Distribution System.

-N-	
Namespace	A namespace is a universe of discourse for the naming of entities. Namespaces in file systems corresponds to a unique path identifying a particular entity (file). Namespaces in distributed object systems such as CORBA correspond to object references (which may correspond to a path in a distributed object space naming convention)
Naming Service	A naming service is a service that allows a client or server to easily locate objects that it requires. A name can be bound to an object, and later the name can be resolved to acquire a reference to the object.
Naming Context	The naming context in the CORBA environment defines a name space for all of the software objects. Objects are organized in a hierarchical tree structure on each Object Request Broker (ORB) and have associated attributes. Objects may be organized and located within the hierarchy based on their names and attributes.
NCITS	National Committee for Information Technology Standards. NCITS T11 is responsible for standards development in the areas of Intelligent Peripheral Interface (IPI), High-Performance Parallel Interface (HIPPI) and Fibre Channel (FC).
NE	Network Element.
Network	In computing, a data communications system that interconnects a group of computers and associated devices at the same or different sites. A collection of MPEG-2 Transport Stream (TS) multiplexes transmitted on a single delivery system, e.g. all digital channels on a specific satellite or cable system.
Network Resource Manager	A studio facility that is responsible for determining the topology of the network, monitoring the status of network links and switches/routers and for establishing connections across the network in response to requests from the Path Construction object, the System Resource Manager and/or studio clients/applications.
NFS	Network File System. This is defined in RFC 1813. File system access is different from file transfer, in that Network File Systems generally employ a client-server model in which the server computer actually has the file system as local data. The client-host is allowed to "mount" the network file system to get access to the directories and files as if they were locally available. Multiple clients are permitted to simultaneously "mount" the server's file system and get access to its Content.
NNI	Network-to-Network Interface. In an ATM network, the interface between one ATM switch and another, or an ATM switch and a public ATM switching system.
NTSC	National Television System Committee – which originated the NTSC standard for analog television signals in North America, and which has also been adopted in Japan and parts of South America. The NTSC system is based on a power supply frequency of 60 Hertz (Hz) and can display 525 scan lines at approximately 30 frames per second. However, non-picture lines and interlaced scanning methods make for an effective resolution limit of about 340 lines. The bandwidth of the system is 4.2 Megahertz (MHz).
-O-	
Object	A computer programming term describing a software component that contains data or functions accessed through one or more defined interfaces. In Java and C++, an object is an instance of a object class.
Object Model	A representation of a system realized using software objects. Each of the objects represents a well-defined entity in the system and is controlled in accordance with its interface specification. The complete specification of all objects, along with the invocation relationships between the objects comprises the object model.
Octet	A group of eight binary digits or eight signal elements capable of representing 256 different values operated upon as an entity (also known as a "word").
ODBC	It is a standard or open application programming interface (API) for accessing a database.
Operating system	Software responsible for controlling the allocation and usage of computer hardware resources such as memory, CPU time, disk space and peripheral devices.
Opportunistic bandwidth	Bandwidth granted whenever possible during the requested period, as opposed to guaranteed bandwidth, which is actually reserved for a given transmission.
Opportunistic data	A data stream whose bit rate is unspecified and, over any time interval, may range from zero to the full bandwidth of the emissions channel.
Opportunistic data flow control	The mechanism by which a multiplexer requests additional MPEG-2 transport stream packets from a data server
Opportunistic data session	The interconnection of a data server containing opportunistic data and an emissions multiplexer that is able to insert that data into the transport multiplex whenever there is unused available bandwidth. There may exist multiple sessions between the same physical multiplexer and the data server.
ORB	Object request broker. It is the programming that acts as a "broker" between a client request for a service from a distributed object or component and the completion of that

	request.
OSI	Open Systems Interconnection. This refers to the ISO / OSI seven layer model for standardizing communications.
-P-	
Packet	A unit of information transmitted as a whole from one device to another on a network. In packet-switching networks, a packet is defined more specifically as a transmission unit of fixed maximum size that consists of binary digits representing both data and a header containing an identification number, source and destination addresses, and sometimes error-control data.
Packet Switching	A switching technique in which no dedicated path exists between the transmitting device and the receiving device. Information is formatted into individual packets, each with its own address. The packets are sent across the network and reassembled at the receiving station.
PAL	Phase Alternation by Line standard. The analog television standard for much of Europe – except France, Russia and most of Eastern Europe, which use SECAM. As with SECAM, PAL is based on a 50 Hertz (Hz) power supply frequency, but it uses a different encoding process. It displays 625 scan lines and 25 frames per second, and offers slightly better resolution than the NTSC standard used in mainly in North America and Japan. The PAL bandwidth is 5.5 Megahertz (MHz).
Partial Transport Stream (TS)	Bitstream derived from an MPEG-2 TS by removing those TS Packets that are not relevant to one particular selected programme, or a number of selected programs.
Path construction service	It is a set of service functions in the path plane to map an Event or task (received from a client or application) into a detailed resource request for devices and/or network resources.
Path Plane	Represents the functions that provide the end-to-end connectivity from one device to another. It contains a collection of logical entities (objects) that collectively build, operate, and manage the connectivity.
PCM	Pulse Code Modulation. A process in which a signal is sampled, and each sample is quantized independently of other samples and converted by encoding to a digital signal.
PCR	Programme Clock Reference.
PDH	Plesiochronous Digital Hierarchy.
PDU	Protocol Data Unit. A unit of information (e.g. a packet or frame) exchanged between peer layers in a network.
PES	Packetized Elementary Stream.
P-frame	MPEG-2 P-frames use a single previously-reconstructed frame as the basis for temporal prediction calculations; they need more than one video frame of storage. Effectively the P-frame uses the nearest previous frame (I or P) on which to base its predictions, and this is called forward prediction. P-frames serve as the reference frame for future P- or B-frames, but if errors exist in a particular P-frame, they may be carried forward to the future frames derived from them. P-frames can provide a greater degree of compression than I-frames.
Physical Layer	The first of the seven layers in the International Organization for Standardization's Open Systems Interconnection (OSI) model for standardizing communications. It specifies the physical interface (e.g. connectors, voltage levels, cable types) between a user device and the network.
PID	Packet Identifier. A 13-bit field in an MPEG-2 transport stream packet header that identifies the transport stream packet as part of a larger data stream that is separate from other streams marked with different PIDs.
Plane	Functional planes exist as the front line interface between the studio applications and the functionality of the control system. The four functional planes are: content management, service, and device. Each of these planes has a well defined set of objectives and is described by a collection of interfaces.
Plesiochronous	The essential characteristic of time-scales or signals such that their corresponding significant instants occur at nominally the same rate, any variation in rate being constrained within specified limits. Two signals having the same nominal digit rate, but not stemming from the same clock, are usually plesiochronous.
PLL	Phase Locked Loop.
Plug and Play	A design philosophy and set of specifications that describe changes to hardware and software for the personal computer and its peripherals. These changes make it possible to automatically identify and arbitrate resource requirements among all devices and buses on a computer. Plug and Play specifies a set of application programming interface (API) elements that are used in addition to existing driver architectures.
Point-to-point	A term used by network designers to describe network links that have only one possible destination for a transmission.

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Port	Generally, the address at which a device such as a network interface card (NIC), serial adapter or parallel adapter communicates with a computer. Data passes in and out of such a port. In Internet Protocol, however, port signifies an arbitrary value used by the Transmission Control Protocol / Internet Protocol (TCP/IP) and User Datagram Protocol / Internet Protocol (UDP/IP) to supplement an IP address so as to distinguish between different applications or protocols residing at that address. Taken together, an IP address and a port uniquely identify a sending or receiving application or process.
PRBS	Pseudo Random Binary Sequence.
Predictor	A device that provides an estimated value of a sampled signal, derived from previous samples of the same signal or from a quantized version of those samples.
Printf	A symbol in the C programming language.
Programme	A concatenation of one or more events under the control of a broadcaster, e.g. a news broadcast, entertainment show.
Proxy Object	A proxy object is an object corresponding to control activity of an underlying hardware component which is not located within the component itself. For example, a commercial off the shelf video tape recorder may participate in the studio object world by means of a proxy object on a server. There is a need to implement a low-level interface between the hardware component and the proxy object.
PSI	MPEG-2 Programme Specific Information (as defined in ISO/IEC 13818-1).
PSK	Phase Shift Keying.
PSTN	Public Switched Telephone Network.
PTS	Presentation Time Stamp.
Push model	A broadcast model in which a server sends information to one or more clients on its own schedule, without waiting for requests. The clients scan the incoming information, save the parts they have been instructed to save, and discard the rest. Because the push model eliminates the need for requests, it eliminates the need for a back channel from the client to the server. The push model contrasts with the pull model, in which each client requests information from a server. The pull model is more efficient for interactively selecting specific data to receive, but uses excessive bandwidth when many clients request the same information.
PVC	Permanent Virtual Circuit. A generic term for any permanent, provisioned, communications medium. Note that PVC does not stand for permanent virtual channel. In ATM, there are two kinds of PVCs: permanent virtual path connections (PVPCs) and permanent virtual channel connections (PVCCs).
-Q-	
QAM	Quadrature Amplitude Modulation.
QoS	Quality of Service. The ATM Forum, for example, has outlined five categories of performance (Classes 1 to 5) and recommends that ATM's QoS should be comparable to that of standard digital connections.
QPSK	Quadrature Phase Shift Keying.
Quantizing	A process in which a continuous range of values is divided into a number of adjacent intervals, and any value within a given interval is represented by a single predetermined value within the interval.
Query	A request that specific data be retrieved, modified or deleted.
-R-	
RAID	Redundant Array of Independent Disks. A means of constructing a server by interconnecting several hard disk units such that the data is distributed across all of them. If an individual hard disks fails, the remainder can continue working and the defective unit can be replaced, usually without taking the server out of service.
RAM	Random access memory. RAM is semiconductor-based memory within a personal computer or other hardware device that can be rapidly read from and written to by a computer's microprocessor or other devices. It does not generally retain information when the computer is turned off.
Reference clock	A clock of very high stability and accuracy that may be completely autonomous and whose frequency serves as a basis of comparison for the frequency of other clocks.
Regeneration	The process of receiving and reconstructing a digital signal so that the amplitudes, waveforms and timing of its signal elements are constrained within specified limits.
Registration Service	A set of functions that provide a centralized or distributed repository of all live studio components that are available for user access.
Registry	A hierarchical database that provides a repository for information about a system's hardware and software configuration.
Reservation Element	An element in a ReservationSequence. Reservation elements define a source component, a destination component and a link between them. Attributes such as

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	bandwidth are describes within a ReservationElement.
Reservation Sequence	A sequence of ReservationElements passed as parameters to the SRM during a ReserveResource(). The sequence is used during resource reservation to define a collection of studio components and links between them.
Resource	A unit of functionality provided by the host for use by a module. A resource defines a set of objects exchanged between the module and host by which the module uses the resource. An example of a resource is a piece of static data, such as a dialog box, that can be used by more than one application or in more than one place within an application. Alternatively, any part of a computer or network, such as a disk drive, printer or memory, that can be used by a program or process.
RFC	Request For Comment.
RFT	Request for Technology.
RMS / rms.	Root Mean Square.
router	A device that helps local area networks (LANs) and wide area networks to connect and interoperate. A router can connect LANs that have different network topologies, such as Ethernet and token ring. Routers choose the best path for a packet, optimizing the network performance.
RS-422	A serial data interface standard. RS-232 has been around as a standard for decades as an electrical interface between Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE) such as modems, and is commonly the serial interface found on PCs. The RS-422 interface is a balanced version of the interface, and it is much less prone to interference from adjacent signals.
RSVP	Resource reSerVation Protocol. RSVP is a QoS signaling protocol for application-level streams. It provides network-level signaling to obtain QoS guarantees.
RTP	Real-time Transport Protocol. RTP permits real-time Content transport by the inclusion of media-dependent Time Stamps that allow Content synchronization to be achieved by recovering the sending clock.
-S-	
S/N (SNR)	Signal-to-Noise Ratio. The amount of power by which a signal exceeds the amount of channel noise at the same point in transmission. This amount is measured in decibels and indicates the clarity or accuracy with which communication can occur.
Sample	A representative value of a signal at a chosen instant, derived from a portion of that signal.
Sampling	The process of taking samples of a signal, usually at equal time intervals.
Sampling rate	The number of samples taken of a signal per unit of time.
Satellite uplink	The system that transports a signal up to a satellite for broadcasting. Signals usually come to the uplink through multiplexers.
Scheduled operations	A generic description of actions and events in a broadcast environment, e.g. playout, switching etc. that are known or programmed to happen in a deterministic time frame in the future
SCPC	Single Channel Per Carrier transmission.
Scrambler	A device that converts a digital signal into a pseudo-random digital signal having the same meaning and the same digit rate.
SDH	Synchronous Digital Hierarchy. International version of SONET that is based on 155 Mbit/s increments rather than SONET's 51 Mbit/s increments.
SDTV	Standard Definition TeleVision. Television service providing a subjective picture quality roughly equivalent to current 525-line or 625-line broadcasts.
SECAM	Sequential Couleur á Memoire, or Sequential Color with Memory. The television standard for France, Russia and most of Eastern Europe. As with PAL, SECAM is based on a 50 Hertz (Hz) power supply frequency, but it uses a different encoding process. Devised earlier than PAL, its specifications reflect earlier technical limitations.
Service	<p>(a) A set of elementary streams offered to the user as a programme. They are related by a common synchronization. They are made of different data, e.g. video, audio, subtitles and other data. Alternatively, it is a sequence of programs under the control of a broadcaster which can be broadcast as part of a schedule.</p> <p>(b) A service in a studio is an executable process that is able to command and control studio components. A service typically has a user interface (although this need not be the case). A service is distinguished from a component, which instead of controlling is controlled. Example services are the Play-To-Air Control Workstation playlist system.</p>
Service Gateway	A logical entity (object) responsible for maintaining the repository and administers directory services to all the planes and applications.

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Service plane	It is responsible for aggregating multiple content streams into complete services and then mapping the implementation of these services onto aggregated resources exposed by the path plane.
Service_id	A unique identifier of a service within a TS.
SetupLatency	The time to preroll a component. For a StreamNode this is the time from when the StreamNode receives a Setup() command to when it is ready to create the stream. SetupLatency is defined in StreamNode.
SI	Service Information. Digital data describing the delivery system, Content and scheduling / timing of broadcast data streams etc. It includes MPEG-2 PSI together with independently-defined extensions (ETS 300 468).
Signal	A physical phenomenon, one or more of whose characteristics may vary to represent information.
Signaling	It is a procedure used to exchange information regarding the status of a specific connection or status of any of the hosts involved in a network connection. It is typically based on a standard protocol. One example is the signaling procedures used to establish connections on an ATM network. In this case, the signaling standards are based on the ITU's Q.93B recommendation.
Slip	The loss or gain of a digit position or a set of consecutive digit positions in a digital signal, resulting from an aberration of the timing processes associated with transmission or switching of a digital signal.
SMPTE	(US) Society of Motion Picture and Television Engineers. The Society was founded in 1916, as the Society of Motion Picture Engineers. The T was added in 1950 to embrace the emerging television industry. The SMPTE is recognized around the globe as a leader in the development of standards and authoritative, consensus-based, recommended practices (RPs) and engineering guidelines (EGs). The Society serves all branches of motion imaging including film, video and multimedia.
SNMP	Simple Network Management Protocol.
SNMP2	Simple Network Management Protocol version 2. An enhancement of the simple gateway monitoring protocol, and which was designed as a connectionless application level protocol within TCP/IP that uses UDP as a transport layer.
SONET	Synchronous Optical NETwork. A set of standards for the digital transmission of information over Fibre optics. Based on increments of 51 Mbit/s.
SQL	Structured Query Language. Pronounced "sequel". A language for accessing data objects stored in a relational database
SRMSession	A sequence of related studio tasks that use SRM services. An SRMSession exists only during the life of the corresponding SRMSession object. The SRMSession object is created by the SRM upon a client request. The SRMSession object is destroyed when a client exits from the session or upon SRM command in exceptional circumstances.
Station	An establishment equipped for radio or television transmission.
Status/alarm services	A set of functions within the system layer that exist to communicate these messages between various entities at all planes of the management system.
STM	Synchronous Transfer Mode / Synchronous Transport Module. In ATM, a method of communications that transmits data streams synchronized to a common clock signal (reference clock). In SDH, it is "Synchronous Transport Module" and is the basic unit (STM-1 = 155 Mbit/s, STM-4 = 622 Mbit/s, STM-16 = 2.5 Gbit/s) of the Synchronous Digital Hierarchy.
Stream	A logical construction between two components corresponding to the transient state of audio/video data being passed between the two components. A stream represents the controllable attributes of the audio/video transfer process.
Stream Latency	The time needed to do the processing on a CreateStream()/Accept Stream() call to a source/sink StreamNode.
Streamable Object	A streamable object is one that is able to produce and consume an audio/video streams. Streamable objects within the studio are derived from the class StreamNode.
Streaming	A collection of data sent over a data channel in a sequential fashion. The bytes are typically sent in small packets, which are reassembled into a contiguous stream of data. Alternatively, it is the process of sending such small packets of data.
Streaming architecture	A model for the interconnection of stream-processing components, in which applications dynamically load data as they output it. Dynamic loading means data can be broadcast continuously.
StreamingElement	A segment (or clip) of audio and/or video data that has been loaded onto one of the media servers (or tape servers) and may be recovered at a later point. An object corresponding to the streaming element is created using the class StreamingElement by the appropriate media server when the media server receives a GetStreamingElement() request.
StreamNode	A portion of a device that corresponds to either video or audio data or both. The stream

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	node portion of a device is made distinct from the rest of the device and represented by the class StreamNode. The StreamNode object is a representation of the audio/video data and can be thought of as the buffers and state information within a studio component that correspond to this data. A StreamNode object will have associated with it either a StreamingElement or a DevicePort. A stream (controlled by an object of class Stream) is always associated with two StreamNode objects.
String	Data composed of a sequence of characters, usually representing human-readable text.
Studio Object Model	An object model composed of studio objects that are defined within the studio object space and are derived from a studio base class. All studio objects are constrained to comply with certain guidelines, e.g., the security model.
Studio Real Time	The current time in the studio as distributed by the Compressed Data Router. Studio Real Time is used to provide a timing context for events that occur in real-time. The studio notion of time is measured and distributed using a universal notion of time.
SVC	Switched Virtual Circuit. A generic term for any switched communications medium. Note that SVC does not stand for switched virtual channel. In ATM, there are two kinds of SVCs: switched virtual path connections (SVPCs) and switched virtual channel connections (SVCCs).
Switch	Device used to route cells through an ATM network.
Symbol rate	The number of signal elements of the signal transmitted per unit of time. The baud is usually used to quantify this, one baud being equal to one single element per second.
Synchronization	The process of adjusting the corresponding significant instants of signals to make them synchronous.
Synchronous	A term used to describe a transmission technique that requires a common clock signal (or timing reference) between two communicating devices to coordinate their transmissions.
Synchronous network	A network in which the corresponding significant instants of nominated signals are adjusted to make them synchronous.
System Resource Manager	A studio facility to reserve and setup system resources. A system resource is any resource that is used to transport, process, or store audio and/or video data. Example resources are network connections, devices (such as a transcoder), etc. Associated with this facility is an interface in StudioObjects.idl called SRM which provides the requisite functions.
-T-	
Task Scheduler	A scheduling service and user interface that is available as a common resource within an operating system. A Task Scheduler manages all aspects of job scheduling: starting jobs, enumerating currently running jobs, tracking job status, and so on.
TCP	Transmission Control Protocol.
TCP/IP	Transmission Control Protocol / Internet Protocol. A networking protocol that provides reliable communications across interconnected networks made up of computers with diverse hardware architectures and operating systems. The TCP portion of the protocol, a layer above IP, is used to send a reliable, continuous stream of data and includes standards for automatically requesting missing data, reordering IP packets that might have arrived out of order, converting IP datagrams to a streaming protocol, and routing data within a computer to make sure the data gets to the correct application. The IP portion of the protocol includes standards for how computers communicate and conventions for connecting networks and routing traffic.
TDM	Time-division multiplexing. Multiplexing in which several signals are interleaved in time for transmission over a common channel.
TearDownLatency	The time taken to release StreamNodes and Network resources.
Telecommunication	Any transmission and/or emission and reception of signals representing signs, writing, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems.
TFHS	The Joint EBU / SMPTE Task Force for Harmonized Standards for the Exchange of Programme Material as Bitstreams.
Theme	A category to which individual television programs are assigned within the Guide database. A theme allows a programme episode to be associated with multiple genre / subgenre pairs.
Timing recovery [timing extraction]	The derivation of a timing signal from a received signal.
Timing signal	A cyclic signal used to control the timing of operations.
Traffic Policing	A mechanism used to detect and discard or modify ATM cells (traffic) that do not conform to the Quality of Service parameters specified in the call setup procedure.
Traffic Shaping	A mechanism used to control traffic flow so that a specified Quality of Service is maintained.

Transaction	It is a collection of operations that need to be executed together, possibly at a specific studio time instance.
Transfer Delay	The time delay incurred by a bitstream as it passes through a component, as represented by a StreamNode object. For example, the transfer delay through a Decoder StreamNode may be 10 msec. Other units may be used, e.g., 1 frame time. Encoder StreamNodes may exhibit a transfer delay required to encode a picture, likewise decoder StreamNodes. A streaming element (i.e. StreamNode) stored on servers should require no transfer delay since the server is able to schedule output of the bits for frame accurate delivery of the data. TransferDelay is defined StreamNode.
Transfer Rate	Transfer Rate is the payload bit rate of a Stream (between two StreamNodes). The maxTransferRate is the maximum bitrate a StreamNode supports. The minTransferRate is the minimum bitrate a StreamNode supports. Transfer Rate is defined in DevicePort, StreamNode and Stream.
Transmission	The action of conveying signals from one point to one or more other points.
Transmission Delay	The time delay from when a bit enters a network pipe to the time it emerges at the other end of the pipe. Transmission delays are computed by the SRM and are always delays between components. Typically they are small.
Transmission Time	The time taken for a clip to be transmitted over the studio infrastructure. For uncompressed media, at real-time play rate, the transmission time will be the same as the "play time" of the clip. For compressed media, at real-time play rate, the transmission time will be close to that of the "play time" of the clip. For either media at non real-time the transmission time differ from that of the "play time".
Transparency, digital transparency	The property of a digital transmission channel, telecommunication circuit or connection, that permits any digital signal to be conveyed over it without change to the value or order of any signal elements.
Transport layer	The fourth of the seven layers in the International Organization for Standardization's Open Systems Interconnection (OSI) model for standardizing communications. The transport layer is one level above the network layer and is responsible for error detection and correction, among other tasks. Error correction ensures that the bits delivered to the receiver are the same as the bits transmitted by the sender, in the same order and without modification, loss or duplication. The transport layer is the highest of the three layers (data link, network and transport) that help to move information from one device to another.
Transport_stream_Id	A unique identifier of a TS within an original network.
TS	Transport Stream. A TS is a data structure defined in ISO/IEC 13818-1 for the MPEG-2 Transport Stream. It is the basis of the ATSC and DVB standards.
TV	Television.
Twisted-pair cable	A communications medium consisting of two thin insulated wires, generally made of copper, that are twisted together. Standard telephone connections are often referred to as "twisted pair."
-U-	
UDP	User Datagram Protocol. UDP, as defined in RFC 768, can be used as an option to enable bounded-quality transfers on top of the IP layer. It allows broadcast transmissions and is a datagram-oriented protocol.
UDP/IP	User Datagram Protocol / Internet Protocol. A networking protocol used to send large unidirectional packets across interconnected networks made up of computers with diverse hardware architectures and operating systems. The UDP portion of the protocol, a networking layer above IP, is used to send unidirectional packets of up to 64 kilobytes in size and includes standards for routing data within a single computer so it reaches the correct client application. The IP portion of the protocol includes standards for how computers communicate and conventions for connecting networks and routing traffic.
UML	Unified Modeling Language. The UML is a language for specifying, visualizing, constructing and documenting the artifacts of software systems. It assists the complex process of software design, making a "blueprint" for construction.
UNI	User-to-Network Interface. A connection that directly links a user's device to a network (usually through a switch). Also, the physical and electrical demarcation point between the user device and the switch.
Unicast	A point-to-point networking model in which a packet is duplicated for each address that needs to receive it.
UNO-CDR	Universal Networked Object - Common Data Representation.
Upstream	One-way data flow from the broadcast client to the head-end.

URI	Uniform Resource Identifier. Also known as a URL.
URL	Uniform Resource Locator. URLs are short strings that identify resources on the Web: documents, images, downloadable files, services, electronic mailboxes and other resources ,etc. They may be thought of as a networked extension of the standard filename concept, in that not only can you point to a file in a directory, but that file and that directory can exist on any machine on the network, can be served via any of several different methods, and might not even be something as simple as a file.
User mode	Software processing that occurs at the application layer.
UTC	Universal Time Co-ordinated.
U-U	User-User
-V-	
VBI	Vertical Blanking Interval. The time period in which a television signal is not visible on the screen because of the vertical retrace (that is, the repositioning of the trace to the top of the screen to start a new scan). Data services can be transmitted using a portion of this signal. In a standard NTSC signal, perhaps 10 scan lines are potentially available per channel during the VBI. Each scan line represents a data transmission capacity of about 9600 baud. In 625-line systems, about 20 scan lines are available in the VBI
VBR	Variable Bit-Rate. A type of traffic that, when sent over a network, is tolerant of delays and changes in the amount of bandwidth it is allocated (e.g. data applications).
VBV	Video Buffer Verifier. The MPEG concept defined in ISO/IEC 13818-2 (MPEG-2, Annex C) employs a fixed-size buffer to handle the transition of the channel bit-rate to the rapidly fluctuating coded bit-rate of individual MPEG pictures. The scope of the VBV is only within a sequence. The VBV is built upon a framework of several axioms of decoder behavior, which are unfortunately not well described in the specification.
VC	Virtual Circuit. A generic term for any logical communications medium.
VCC	Virtual Channel Connection. A logical communications medium identified by a VCI and carried within a VPC.
VCI	Virtual Channel Identifier. The field in the ATM cell header that labels (identifies) a particular virtual channel.
VCR	Video Cassette Recorder.
VHF	Very High Frequency.
VHS	Video Home System.
Virtual LAN	A logical association of users sharing a common broadcast domain.
VPC	Virtual Path Connection. A logical communications medium in ATM, identified by a Virtual Path Identifier (VPI) and carried within a link. VPCs may be permanent virtual path connections (PVPCs), switched virtual path connections (SVPCs), or smart permanent virtual path connections (SPVPCs). VPCs are uni-directional.
-W-	
WAN	Wide Area Network. A communications network that connects geographically-separated areas.
Wander	Long-term non-cumulative variations of the significant instants of a digital signal from their ideal positions in time.
Wrapper	A function that provides an interface to another function.
WWW	World Wide Web / the Web. A hypertext-based, distributed information system created in Switzerland and used for exploring the Internet. Users may create, edit or browse hypertext documents on the Web.
-X-	
XTP	eXtended Transport Protocol. A network-level interface appropriate for file transfer. XTP can operate in a "raw" mode in which it encompasses both the network and physical layers, or it can operate on top of IP. XTP in raw mode achieves some efficiency and has the possibility of using features of the underlying physical media (such as the QoS for ATM) that is not possible when XTP is used on top of IP.
-Y-	
YUV	True-color encoding that uses one luminance value (Y) and two chroma values (UV).