Glossary*

AAL1 Trunking	A trunking solution that uses AAL1 to support dynamic allocation of resources and call-by-call routing without circuit emulation.
AAL2 Channel	A channel that carries CPS packets of a user identified by the CID on an ATM VCC.
AAL2 Connection	The logical concatenation of one or more AAL2 links between two AAL2 service end-points.
AAL2 Link	The logical user plane communication facility between two adjacent AAL2 switching points or service end-points. An AAL2 link is designated by a single CID value.
AAL2 Node	An AAL2 service endpoint or an AAL2 switch.
AAL2 Path	An ATM VCC between two adjacent AAL2 nodes.
AAL2 Service End-point	A termination point of an AAL2 connection.
AAL2 Signalling	The ITU-T standard that provides means to dynamically establish, manage and release AAL2 connections over ATM VCs.
AAL2 Signalling Protocol	Control plane functions for establishing and releasing AAL2 connections and the maintenance functions associated with the AAL2 signalling.

* *This section has some of the important ATM specific terms used in the book. All the terms are generally with respect to ATM (e.g. control plane refers to ATM control plane). For expansion of a given abbreviation, the abbreviation must first be expanded through the abbreviation section and the same needs to be then referred in this section. This section may not be comprehensive as only important ATM-specific terms are covered here.*

AAL2 Signalling Transport — The underlying transport used for carrying AAL2 signalling messages.

AAL2 Switch — A switch that is capable of switching AAL2 connections.

AAL2 Trunking — A trunking solution that uses AAL2 to provide a broad range of applications involving interconnection of an IWF with narrowband and broadband facilities and interworking with various other telecommunications devices including PBXs and ATM network switches.

ABR Flow Control — A fast resource management mechanism to utilize any leftover bandwidth in the network for connections belonging to ABR service category.

Access Link Control Application Part (ALCAP) — The signalling protocol that is used to set bearer channels for the transport network layer in UMTS network.

Address Resolution — A mechanism to bind a high-level protocol address (like IP) to a low-level hardware address (like Ethernet address).

Address Summarization — The process of using a single reachable address prefix to represent a collection of end systems and/or node addresses that begin with the same prefix.

Alarm Indication Signal (AIS) — A signal sent to a downstream node, when a VPC/VCC failure/defect is detected.

Anycast — ATM Anycast capability allows a user to request a point-to-point connection to a single ATM end system that is part of an ATM group.

Associated Signalling — A scheme in which all the signalling messages for each VP is exchanged on VCI = 5 of that virtual path.

Asynchronous Transfer Mode (ATM) — A transfer mode in which the information is organized into cells. It is asynchronous in the sense that the recurrence of cells containing information from an individual user is not necessarily periodic.

ATM Adaptation Layer (AAL) — The layer that allows multiple applications to have data converted to and from the ATM cell. In other words, it is a protocol used that translates higher layer services into the size and format of an ATM cell.

ATM Adaptation Layer 1 (AAL1) — AAL1 provides transfer of time-sensitive, constant bit rate traffic on an ATM connection.

ATM Adaptation Layer 2 (AAL2) — AAL2 provides transfer of time-sensitive, variable bit rate traffic on an ATM connection.

ATM Adaptation Layer 3/4 (AAL3/4) — AAL2 provides transfer of connectionless/connection-oriented, time-insensitive, variable bit rate data on an ATM connection.

ATM Adaptation Layer 5 (AAL5) AAL5 provides transfer of time-insensitive, variable bit rate data on an ATM connection requiring minimal sequencing or error detection support.

ATM End System Address (AESA) An addressing mechanism based on the Network Service Access Point (NSAP) that identifies the location of one or more ATM interfaces.

ATM Forum It is a consortium of ATM vendors, formed with the objective of accelerating the use of ATM products and services through a rapid convergence of interoperability specifications. It also promotes industry cooperation and awareness.

ATM Group Address An ATM address that identifies a service (rather than an end-system).

ATM Inter-Network Interface (AINI) It is the interface that facilitates interworking of two networks running PNNI internally in disjoint PNNI routing domains.

ATM Layer The layer that performs cell multiplexing / demultiplexing and cell relaying.

ATM Switch A switch that is capable of switching ATM virtual connections.

ATM Trunk Refers to one or more ATM Virtual Connections that carry a number of 64 Kbps narrowband channels and associated signalling between a pair of Inter-Working Functions.

ATMARP A service that is quite similar to the conventional ARP (defined for broadcast-based mediums like Ethernet and token ring) that uses a central server that keeps such a mapping between ATM addresses and IP addresses.

Authority and Format Identifier (AFI) AFI field specifies the authority controlling the IDI and the format of the IDI.

Available Bit Rate (ABR) A service category for which the ATM layer characteristics provided by the network changes dynamically using a flow control mechanism. This mechanism supports several types of feedback to control the source rate in response to changing network conditions.

B-ISDN Inter-Carrier Interface (B-ICI) It is the interface that defines rules for communication between two public ATM networks.

Border nodes Nodes connected via an outside link are called border nodes.

Broadband Integrated Services Digital Network (B-SIDN) A network that supports all types of communication (including voice, video and data). The term broadband is formally defined as ‘a service or a system that requires transmission channels capable of supporting rates greater

	than the primary access rate' (the primary rate depending upon the hierarchy used is equal to 1.544 Mbps or 2.048 Mbps). Informally, broadband technologies refer to an array of high-speed technologies including SONET/SDH, DSL, ATM and Gigabit Ethernet.
Broadcast and Unknown Servers (BUS)	The server that handles data sent by an LE Client to the broadcast MAC address (0xFFFFFFFFFFFF), all multicast traffic, and initial unicast frames, which are sent by a LE Client.
Burst Tolerance (BT)	BT is a measure of the interval between consecutive bursts during which cells are sent at PCR. It provides the time interval after which an ATM source can again send data at PCR without violating the long-term average of SCR.
Call Reference Value (CRV)	Identifies a particular signalling connection between signalling peers.
Cell	The lowest unit of information in ATM that is of fixed size (53 bytes) with 5 bytes of header and 48 bytes of payload.
Cell Delay Variation (CDV)	It is the part of cell transfer delay that is induced by buffering and cell scheduling leading to inconsistencies in the cell transfer delay.
Cell Delay Variation Tolerance (CDVT)	A cell stream arriving at the user network interface experiences some cell delay variation while entering the network. The reasons for this include multiplexing of several incoming cell streams or due to the variable processing delays in switches at the network ingress point. This delay variation or randomness affects the inter-arrival time (i.e. 1/PCR) between consecutive cells of a connection as monitored at the UNI. Due to this, a cell stream injected at PCR may suffer some delay variation, resulting in the rate exceeding PCR. CDVT represents an upper bound on the delay variation (i.e. jitter) of cells at a UNI.
Cell Delineation	The identification of cell boundaries in a cell stream.
Cell Error Ratio (CER)	It is the ratio of the total number of cells delivered with error to the total number of cells delivered.
Cell Loss Priority (CLP)	A single bit field in the cell header that is used to assign a two-level priority to a cell.
Cell Loss Ratio (CLR)	It is the fraction of cells that are either not delivered to the destination or delivered after a pre-specified time.
Cell Mis-insertion Ratio (CMR)	It is the ratio of cells received at an endpoint that were not originally transmitted by the source to the total number of cells properly transmitted.

Cell Rate Decoupling — It refers to the process of inserting dummy cells (or idle cells) to fill the time slots allotted for user cells and to match the rate of outgoing cells to the link rate.

Cell Relaying — The process of replacing the VPI/VCI value of an incoming cell to a new VPI/VCI value. Depending upon the type of connection (virtual path connection or virtual channel connection), either only the VPI value or both VPI/VCI values are swapped.

Cell Scrambling — A mechanism whereby the undesired patterns in data are changed at the source and the changes reverted back at the destination to improve the security and robustness of the HEC delineation algorithm.

Cell Switching — Virtual circuit switching technique in which fixed-size small cells are used instead of variable-sized frames.

Cell Tagging — The action taken against a non-conforming cells in which the CLP bit in the ATM header is set to 1. Cell tagging applies to CLP = 0 cells only.

Cell Transfer Delay (CTD) — It is the elapsed time between exit of a cell at the measurement point 1 (e.g., at the source UNI) and the corresponding cell entry event at measurement point 2 (e.g., the destination UNI) for a particular connection.

Channel Identifier (CID) — The identifier that identifies an AAL2 channel. This field is used for multiplexing a number of AAL2 users on the same ATM virtual channel.

Circuit Emulation Service (CES) — A technique in which ATM emulates the behaviour of a TDM circuit by providing a transparent transport pipe for carrying user traffic.

Circuit Switching — A technique in which a dedicated circuit (or a channel) is established from source to destination and the information is sent as a bit stream through the fixed bandwidth channel.

Classical IP Over ATM — This defines a method to carry IP datagrams over ATM networks using the classical model.

Classical Model — This refers to the treatment of the ATM host adapter as a networking interface to the IP protocol stack operating in a LAN-based paradigm.

CLP Significant — This category refers to the cell flows in which the CLP bit is not ignored by the network. The CLR objectives apply onto to cells with CLP = 0. Thus, even if cells carrying CLP = 1 are dropped by the network, this is not counted against the performance guarantees provided by the network.

CLP transparent — This category refers to the cell flows in which the CLP bit is ignored by the network. For this category, cells with CLP = 1 and cells with CLP = 0 are given identical treatment.

Common Part Convergence Sub-layer (CPCS) — It is that part of the convergence sub-layer that provides generic functionality common across applications and is fixed for an AAL.

Common Part Sub-layer (CPS) — The sub-layer that provides the basic functionality of AAL2, which includes packaging the variable payload into cells and providing error correction.

Compliance — A connection is compliant if it does not have 'too many' non-conforming cells. The exact definition of 'too many' is network-specific. For a compliant connection, the network provides QoS guarantee for at least the number of cells that are conforming. For a non-compliant connection, the network is not obliged to provide QoS guarantees to any cell on that connection.

Conformance — Each cell is either declared conforming or non-conforming, depending upon the adherence of that cell to the conformance definition. For each service category, a conformance definition is explicitly defined in the ITU-T / ATM Forum specifications.

Connection Admission Control (CAC) — Set of actions taken by the network at the call establishment phase (or during call renegotiation phase) in order to determine whether a request to establish a VCC or VPC can be accepted or rejected.

Constant Bit Rate (CBR) — A service category used by applications that require a constant bandwidth allocated to them throughout the life of the connection. This service category places strict upper bounds on cell delay and cell delay variation.

Continuity Check — A mechanism that is used to identify faults in the link quickly through the use of continuity check OAM cells.

Control Plane — It performs connection control functions, which includes the establishment, monitoring and release of virtual connections.

Control Plane Security — The set of security functions available in the ATM control plane that includes data origin authentication and data integrity.

Convergence — The phenomenon whereby the telecommunication and datacommunication world converge to provide integrated services.

Convergence Sub-layer (CS) — The sub-layer that interfaces directly with the user and accepts data from it. It optionally adds a header and / or a trailer to the user data, and passes it to the SAR sub-layer.

Crankback — A mechanism for partially releasing a connection setup in progress which has encountered a failure. This mechanism allows PNNI to perform alternate routing.

Cut-through Model — A model that involves establishing direct virtual connections with the destination as soon as a significant flow is detected. A significant flow implies that at least a given number of packets are sent to a particular end-system within a specified time interval.

Data Exchange Interface (DXI) — It is a standardized mechanism to interface between frame-based devices (e.g. IP-based routers) and ATM network elements.

Designated Transit List (DTL) — The information element used to carry source routing information.

Digital Signal, Level 0 (DS0) — The 64 Kbps rate that is the basic building block for both the North American and European digital hierarchies.

Digital Signal, Level 1 (DS1) — Also called T1, this is a North American Digital Hierarchy signaling standard for transmission at 1.544 Mbps. This standard supports 24 simultaneous DS-0 signals.

Digital Signal, Level 3 (DS3) — Also called T3, this is a North American Digital Hierarchy signaling standard for transmission at 44.736 Mbps that is used by T3 carrier.

Digital Subscriber Line (DSL) — Refers to the a technology that provides access solution for the home and business environments using the existing copper infrastructure that is installed for the Plain Old Telephone System (POTS) network.

DSL Access Multiplexer (DSLAM) — A device that serves as a packet concentrator, which receives data traffic from multiple customers over DSL links, and sends this aggregate traffic towards the data network (e.g. Internet).

DSL Modem — A device installed within the customer premises that is used to originate and terminate the data traffic over the local loop.

Dynamic Bandwidth Circuit Emulation Services (DBCES) — An improvement over CES scheme in which when an inactive state is detected in a specific time slot, the time slot is dropped from the next ATM structure and the bandwidth it was using is utilized for other services.

E1 — This refers to the 2.048 Mbps rate used by European carrier to transmit 30 digital channels for voice or data calls at 64 Kbps, plus a 64 Kbps signaling channel and a 64 Kbps channel for framing and maintenance.

E3 — This refers to the 34.368 Mbps rate used by European carrier to transmit 16 E1 plus overhead.

Early Packet Discard (EPD) — A packet discard scheme in which an entire incoming frame is discarded to prevent any possibility of buffer overflow.

End-point Reference Value (ERV) — An identifier used to differentiate between different parties in the same point-to-multipoint call.

Explicit Forward Congestion Indication (EFCI) — A mechanism in which the congestion bit in the ATM header is set to 1 to indicate an impending congestion in the network. Upon receiving an EFCI notification, the destination should somehow communicate to the source to slow down the transmission rate because congestion is prevalent in the downstream direction.

F1 Level OAM Flow — An OAM flow defined at regenerator section level.

F2 Level OAM Flow — An OAM flow defined at digital section level.

F3 Level OAM Flow — An OAM flow defined at transmission path level.

F4 level OAM flow — An OAM flow defined on an end-to-end VPC or on single / group of virtual path links.

F5 Level OAM flow — An OAM flow defined on an end-to-end VCC or on single / group of virtual channel links.

Flooding — The technique used in link-state routing protocols including PNNI that enables a switch / router to have information of other parts of the network.

Frame Discard — A mechanism whereby instead of discarding cells, complete higher layer PDUs are discarded.

Frame Relay — A frame based virtual circuit switching technique that switches variable-sized frames using a single label Data Link Connection Identifier (DLCI).

Frame-based ATM Over SONET/SDH Transport (FAST) — It is a standardized mechanism to carry frame-based ATM traffic over SONET / SDH.

Frame-based ATM Transport Over Ethernet (FATE). — It is a standardized mechanism to carry frame-based ATM traffic over Ethernet.

Frame-based UNI (FUNI) — An enhancement over DXI that pushes SAR function within the ATM network, as part of the ATM switch functionality.

Generic Cell Rate Algorithm (GCRA) — A technique based on leaky bucket algorithm that is used to define conformance of the cells with respect to the negotiated traffic contract.

Generic Flow Control — It refers to the link-level flow control mechanism used to control data offered at a UNI.

Generic Signalling Transport — The technique that that enables an AAL2 signalling entity to communicate with a peer AAL2 signalling entity independently of the underlying signalling transport.

Guaranteed Frame Rate (GFR) A service category, like ABR, that attempts to dynamically utilize the residual bandwidth in the network without any complex flow control mechanism.

Header Error Control (HEC) An error control mechanism for the cell header that provides single-bit error correction and multiple-bit error detection capabilities

Hello Packet A type of PNNI Routing packet that is exchanged between neighboring logical nodes to indicate availability.

Hierarchical Network A structure used in PNNI in which each node in the hierarchy maintains a partial view of the network. This mechanism improves the memory and processing requirements at intermediate switches.

Horizontal Link A logical link within a peer group.

Idle Cells Idle cells apply at the physical layer and are equivalent to unassigned cells at the ATM layer.

InATMARP A mechanism for a node to know the IP address of the destination node, corresponding to an open PVC connection. Using this mechanism, a node can know all the IP addresses reachable through it.

Initial Domain Identifier (IDI) IDI identifies the authority controlling the assignment of the Domain Specific Part (DSP).

Initial Domain Part (IDP) This identifies a particular network-addressing domain that is part of the global network-addressing domain

Integrated Access Device (IAD) A device installed within the customer premises that provides multiple ports for connecting voice-communication devices (e.g. telephones), and also provides one or more ports for data services.

Integrated Layer Management Interface (ILMI) A protocol that provides the status and configuration parameters to an ATM device necessary for it's functioning. These status and configuration parameters primarily relate to Virtual Path Connections, Virtual Channel Connections, ATM Network Prefixes and ATM Addresses associated with an ATM interface.

Integrated Services Digital Network (ISDN) A digital network that supports a host of services including voice, fax, Internet, videoconferencing and LAN interconnection.

Interim Inter Switch Protocol (IISP) A rudimentary inter-switch communication protocol that does not support QoS routing, crankback and most other features of PNNI protocol.

Internet Engineering Task Force (IETF) The IETF is a large and open international community of network designers, operators, vendors and researchers, concerned with the evolution of Internet architecture and

	the smooth operation of the Internet. It is the main body responsible for the development of new Internet standards.
Label Swapping	See 'Virtual circuit switching'
Label Switching Router (LSR)	The routers in MPLS network that route packets using labels.
LAN Emulation	A technique that provides means for traditional LAN technologies like Ethernet and Token ring to co-exist with ATM LANs in a heterogeneous LAN environment. Using LAN emulation, two non-ATM end-systems can not only communicate with each other, but they can also communicate with end-systems directly attached to an ATM network
Layer Management	This layer handles Operation and Maintenance (OAM) flows, specific to the layer concerned. This layer also handles the resources and parameters residing in its protocol entities.
LE Client (LEC)	Any network element (e.g. end-systems, bridges and routers) that is attached to an ATM network and participating in LAN emulation, contains a LAN Emulation Client (LEC).
LE Configuration Server (LECS)	A server that acts as a central repository of configuration information that assigns individual LE Clients to an Emulated LAN.
LE Server (LES)	The server that implements the control coordination function for the Emulated LAN. It provides a facility to register and resolve unicast and multicast MAC addresses to ATM addresses.
Leaf Initiated Join (LIJ)	A technique in which leaves can initiate procedures for establishing a new point-to-multipoint call, or can even initiate procedures for adding themselves to an already existing connection, with or without the intervention from the root.
Leaky Bucket Algorithm	A scheme in which bursty data generated by a source is stored in the buffer and sent out at a lower rate, thereby transforming bursty traffic with a high data rates to a more stable traffic with lower data rates. It is used for traffic shaping and traffic policing.
Logical Group Node (LGN)	An abstract representation of a peer group as a single point for the purpose of representing that peer group at a particular level (but not at the lowest) in the PNNI routing hierarchy.
Logical IP Sub-network (LIS)	An LIS consists of ATM attached hosts and routers that is configured in a manner similar to the way any IP sub-net

	is configured. All members of the LIS are directly connected to the ATM network and have the same IP network/sub-net number and address mask.
Logical Link	Links in PNNI routing hierarchy that represents the connection between two logical nodes.
Logical Link Control (LLC) Encapsulation	A technique in which packets belonging to multiple protocols are multiplexed over a single VC through the use of special purpose header called the LLC/SNAP header.
Logical Node	A logical node refers either to a lowest-level node or to a Logical Group Node (LGN)
Lowest-level Node	A node that is at the lowest level in the PNNI hierarchy.
Management Plane	It is responsible for maintenance and management-related functions. The functions of this plane are categorized into layer management functions and plane management functions.
Maximum Burst Size (MBS)	This is the amount of data that an ATM source can send at its peak cell rate. It gives the number of cells an ATM source can send at the PCR.
Maximum Frame Size (MFS)	This parameter specifies the maximum size of AAL PDU for the Guaranteed Frame Rate (GFR) service category.
Meta-signalling	The signalling procedure used for establishing, managing and releasing signalling channels.
Minimum Cell Rate (MCR)	This parameter is the minimum cell rate that the network must provide to a connection. Its value can even be zero.
MPOA Client (MPC)	This resides in a host attached to the ATM network or in edge devices that forward data from non-ATM networks to ATM networks. The MPOA clients act as entry and exit points in the MPOA network.
MPOA Server (MPS)	A component of the router that provides necessary forwarding information to MPOA Clients.
Multi-Protocol Encapsulation Over AAL5	The techniques includes LLC encapsulation and VC based multiplexing that allow multiple protocols to be carried over AAL5 channel.
Multi-Protocol Label Switching (MPLS)	A new industry development standardized by the IETF in which the ingress point classifies each packet and attaches a label to it. Subsequent nodes within the MPLS domain only perform a label-table look-up to switch the packet towards the destination.
Multi-Protocol Over ATM (MPOA)	A protocol that uses the NHRP to establish cut-through connections bypassing the intermediate routers in the data path. MPOA also employs the LANE standard for intra-sub-net communication.

Network Node Interface (NNI) The interface used by a network node to interconnect with another network node.

Network Parameter Control (NPC) The mechanisms applied at the NNI to monitor the traffic flow and to enforce the traffic contract.

Next Hop Resolution Protocol (NHRP) An address resolution mechanism that gives the mapping between IP and the ATM address or provides the means to determine the egress point from the ATM network to reach the destination.

Next Hop Server (NHS) An entity within the logical sub-network that receives NHRP address resolution requests from NHC and responds by sending the mapping between ATM and IP addresses.

NHRP Client (NHC) An entity that initiates NHRP requests in order to obtain access to various NHRP services. All requests initiated by an NHRP Client are sent to the NHS.

Nodal Information This refers to the general information stored by a PNNI node (e.g. AESA, leadership priority, etc.).

Node A single instance of the PNNI routing protocol created in a switching system via configuration.

Non-associated signalling A scheme in which all the signalling messages of all the virtual paths are exchanged on VPI = 0 and VCI = 5.

Non-Broadcast, Multi-Access (NBMA) networks A network that consists of a set of nodes interconnected using point-to-point or point-to-multipoint links (e.g. ATM network).

Non-Real-Time Variable Bit Rate (nrt-VBR) A service category used by applications that have bursty traffic but do not have strict requirements for cell transfer delay and cell delay variation.

OAM Cell Special purpose cells that are associated with different OAM information flows and are involved in OAM functions.

Operations and Maintenance (OAM) The set of performance and fault management procedures defined for ATM using OAM cells.

Outside Link Link connecting nodes of two different peer groups.

Partial Packet Discard (PPD) A packet discard scheme in which once a cell of a frame is dropped, all the remaining cells (barring the end-of-frame cell) of this frame are also dropped.

Payload Type Identifier (PTI) A 3-bit field in the cell header identifies the type of the payload in the cell

Peak Cell Rate (PCR) This is the maximum rate at which a user is allowed to inject data into the network. It defines an upper bound on the traffic that can be submitted by an ATM source.

Peer Group (PG) — A set of logical nodes which are grouped for the purpose of creating a routing hierarchy; the member nodes of the group exchange topology information between themselves, thereby maintaining a single view of the group.

Peer Group Leader (PGL) — A node of a peer group that performs the extra work of collecting, aggregating and building data that is suitable to represent the entire peer group as a single node in a higher-level peer group.

Permanent Virtual Circuit (PVC) — This is a static link that is established through manual setup.

Physical Medium Dependent (PMD) Sub-layer — It is the layer whose functions depend upon the underlying physical media. These functions directly relate to the physical representation of the bits on the physical medium and the interpretation of the bits at the receiver.

Plane Management — This provides coordination between all the planes. It does not contain a layered structure.

Plesiochronous Digital Hierarchy (PDH) — This was developed to carry digitized voice over twisted pair cabling more efficiently. This evolved into the North American, European, and Japanese Digital Hierarchies where only a discrete set of fixed rates is available, namely, nxDS0 (DS0 is a 64 Kbps rate) and then the next levels in the respective multiplex hierarchies.

Point-to-multipoint Signalling — Refers to the signalling for establishment and release of connections between a root and multiple leaves.

Point-to-point Signalling — Refers to the signalling for establishment and release of connection between two entities.

Private Network-Node Interface (PNNI) — A protocol that provides signalling and routing functionality at the NNI interface.

QoS-based Routing — A mechanism of routing connection request through a path that can satisfy the QoS requirements specified in the request.

Quality of Service (QoS) — Providing Quality of Service for an ATM connection refers to providing a bound to the cell loss, the transit delay, and the delay variation induced by the ATM network in transiting cells of that connection.

Random Early Discard (RED) — A packet discard scheme in which whenever the queue size in the switch buffer exceeds certain threshold, each incoming packet is dropped with a certain probability, where the exact probability is a function of average queue size.

Reachability Information — The topology information that binds reachable addresses to nodes within the PNNI routing domain.

Real-Time Variable Bit Rate (rt-VBR)	A service category used by applications that have bursty traffic and require strict bounds on cell transfer delay and cell delay variation.
Remote Defect Indication (RDI)	A signal sent to an upstream node, when a VPC/VCC failure/defect is detected.
Routing	Routing is a hop-by-hop datagram forwarding technique in which the destination address field of the packet header is used to make forwarding decisions
Security Agent (SA)	The entities that reside at end systems or at intermediate switches and provide means for secured communication.
Security Association	Refers to the distributed contextual information (that includes the algorithm type, security keys, mode of operation, etc.), which controls the nature of the security service to be provided for a given VC.
Security Message Exchange (SME) protocol	The mechanism to exchange security information and to negotiate security services with a peer security agent.
Segmentation and Reassembly (SAR) sub-layer	The sub-layer segments the data received from CS into smaller data units. The SAR sub-layer may also add a header and/or a trailer to these smaller data units to form a 48-byte SAR-PDU.
Selective Cell Discard	It refers to the action of selectively discarding cells with CLP bit set when buffer overflow occurs within the network.
Service Level Agreement (SLA)	Set of parameters that define the quantitative benchmarks for the service provided. It indicates the reliability and performance of an ATM VP or VC provided by a service provider.
Service Specific Connection-Oriented Part (SSCOP)	The core sub-layer of SAAL that provides connection-oriented transfer of PDUs with retransmission support.
Service Specific Convergence Sub-layer (SSCS)	It is that part of the convergence sublayer that provides additional functionality required for specific applications.
Service Specific Coordination Function (SSCF)	This sub-layer provides a mapping between the primitives provided by SSCOP to that required by specific-user applications.
Severely Errored Cell Block Ratio (SECBR)	It is the ratio of severely errored cell blocks to the total transmitted cell blocks. (A severely errored cell block outcome occurs when more than M error cells, lost cells or mis- inserted cell outcomes are observed in a received cell block of N cells.)
Shared LAN	A LAN connectivity model in which multiple hosts share a common communication channel.

Signalling ATM Adaptation Layer (SAAL)	A special AAL used for the purpose of signalling that provides reliable transport for signalling messages.
Signalling Transport Converter (STC)	A function that converts the services provided by a particular signalling transport to the services required by the signalling layer.
Soft PVC	A model in which users have permanent virtual connection but the connection within the network is established using signalling.
Source Routing	The routing technique in which ingress node specifies the complete path to the destination
State Information	The dynamic PNNI information maintained to determine whether a new connection request can be accepted or not
Statistical Time Division Multiplexing (STDM)	A technique in which instead of reserving slots on a permanent basis for an incoming channel, a slot is assigned as and when user data is received.
Structured Data Transfer (SDT)	The mechanism used to support N×64 Kbps circuits (i.e. fractional T1/E1 links) over AAL1.
Sub-net Model	The model in which if two entities connected to two different emulated LANs want to interact, the data is routed through the routers
Sustainable Cell Rate (SCR)	This is the measure of the long-term average of user traffic. It defines an upper bound on the long-term average of conforming cells for an ATM connection.
Switched LAN	A LAN connectivity model in which each host is directly connected to a switch (or an intelligent hub).
Switched Virtual Circuit (SVC)	A connection that is established/released dynamically using signaling procedure.
Synchronous Digital Hierarchy (SDH)	The ITU-T standard for transmitting information over optical fiber.
Synchronous Optical Networks (SONET)	The ANSI standard for transmitting information over optical fiber.
Synchronous Transport Signal Level-1 (STS-1)	SONET standard for transmission over OC-1 optical fiber at 51.84 Mbps.
Synchronous Transport Signal Level-N (STS-N)	SONET standards for transmission over OC-n optical fiber by multiplexing 'N' STS-1 frames, (e.g., STS-3 at 155.52 Mbps, STS-12 at 622.08 Mbps and STS-48 at 2.488 Gbps).
Synchronous Transport Signal Level-N Concatenated (STS-Nc)	SONET standards for transmission over OC-n optical fiber by multiplexing 'N' STS-1 frames, (e.g., STS-3 at 155.52 Mbps, STS-12 at 622.08 Mbps and STS-48 at 2.488 Gbps but treating the information fields as a single concatenated payload).

T1	See 'Digital Signal, Level 1'
T3	See 'Digital Signal, Level 3'
Topology Aggregation	Topology aggregation is the process of reducing topology information by summarizing nodal as well as link information
Traffic Contract	It is defined by two sets of parameters, viz. the Connection Traffic Descriptor and QoS parameters, that collectively defines the traffic characteristics and service requirements.
Traffic Management	Set of procedures used for managing network traffic, providing service guarantees to user connections and ensuring optimal utilization of network resources.
Traffic Parameters	They specify various aspects and characteristics of traffic
Traffic Shaping	It refers to the mechanism that alters the traffic characteristics of a stream of cells on a VCC or a VPC to achieve a desired traffic characteristics, in order to ensure conformance or to achieve better network efficiency whilst meeting the QoS objectives.
Transfer Mode	Transfer mode refers to the techniques used to transmit, switch and multiplex information. In other words, transfer mode is the means of packaging, sending and receiving information on the network.
Transmission Convergence (TC) Sub-layer	It performs functions that are required independent of the underlying physical medium (e.g. cell rate decoupling and cell delineation).
Transmission Frame Adaptation	Mapping of cells into a framed physical layer structure.
Unassigned Cells	The cells generated by ATM layer when it has nothing to send to the lower layer and when the lower layer expects a continuous stream of cells. At the destination, these cells are not passed on to the higher layer.
UNI Signalling	The ATM signalling procedures defined for UNI.
Universal Mobile Telecommunications System (UMTS)	A term coined by ETSI that is synonymous with 3G networks as defined by ETSI.
Universal Terrestrial Radio Access Network (UTRAN)	The access network used in UMTS network that comprises of RNC and Node B.
Universal Test and Operations PHY Interface for ATM (UTOPIA)	It defines an interface between the physical layer (PHY) and the ATM layer.
Unspecified Bit Rate (UBR)	A service category used by applications having no requirement, whatsoever, with regards to cell transfer delay, cell delay variation or cell loss.
Upnode	An upnode is a neighbouring peer of one of the border node's ancestors.

Usage Parameter Control (UPC) The mechanisms applied at the UNI to monitor the traffic flow and to enforce the traffic contract.

User Plane It provides means for the transfer of user information.

User Plane Security The set of security functions available in the ATM user plane that includes identity authentication, confidentiality, data origin authentication and data integrity and access control.

User-Network Interface (UNI) It is the interface between an ATM end-system and a private ATM switch or between a private ATM switch and the public carrier ATM network.

VC Cross Connect A network element which connects virtual channel links, terminates virtual path connections, and is directed by management plane functions.

VC Switch A network element which connects virtual channel links, terminates virtual channel connections, and is directed by control plane functions.

VC-Based Multiplexing A technique in which the protocol of the packets is implicitly identified by the VC connecting two ATM end-systems

Virtual Channel (VC) A concept used to describe unidirectional transport of ATM cells associated by a common unique identifier value called VCI.

Virtual Channel Connection (VCC) A concatenation of virtual channel links that extends between two points where the adaptation layer is accessed.

Virtual Channel Identifier (VCI) A unique 16-bit numerical label in the ATM cell header that identifies a virtual channel, over which the cell is to travel.

Virtual Channel Link A means of unidirectional transport of ATM cells between a point where a virtual channel identifier value is assigned and the point where that value is translated or removed.

Virtual Circuit Switching A technique in which virtual circuits are established and the packets are forwarded using the virtual circuit numbers.

Virtual Path (VP) A concept used to describe unidirectional transport of ATM cells belonging to virtual channels that are associated by a common identifier value called VPI.

Virtual Path Connection (VPC) A concatenation of virtual path links that extends between the point where the virtual channel identifier values are assigned and the point where those values are translated or removed.

Virtual Path Identifier (VPI) A unique 8-bit or 12-bit numerical label in the ATM cell header that identifies a virtual path, over which the cell is to travel.

Virtual Path Link	The group of virtual channel links, identified by a common value of the virtual path identifier, between the point where the VPI value is assigned and the point where the VPI value is translated or removed.
Virtual Scheduling	It is a method used to determine the conformance of an arriving cell. The algorithm updates a Theoretical Arrival Time (TAT), which is the 'nominal' arrival time of the cell assuming that the active source sends equally spaced cells. If the actual arrival time of a cell is not 'too' early relative to the TAT, then the cell is conforming. Otherwise the cell is non-conforming.
Voice and Telephony Over ATM (VTOA)	The ATM Forum Voice and Telephony over ATM service interoperability specifications that provide means for carrying voice over ATM networks.
Voice Over DSL (VoDSL)	A technique that provides multiple voice communication channels along-with data access over the same single copper cable originally used for POTS service.
VP Cross Connect	A network element that connects virtual path links, translates VPI values and is directed by management plane functions.
VP Switch	A network element that connects virtual path links, translates VPI values and is directed by control plane functions.
xDSL	Jointly refer to varios flavours of DSL like ADSL, SDSL, VDSL and HDSL.