Glossary

ATM adaptation layer

The layer that adapts higher level data into formats that are compatible with the ATM layer requirements. This layer depends on the higher layer services being transported; several different ATM Adaptation Layers (AALs) have been defined for services such as data-only transport, voice, video, and others.

The AAL is an end-to-end process used only by the two communicating entities to insert and remove data from the ATM layer. Different types of AALs deal with different types of traffic, but they all ultimately end up with 48-byte segments for packing into the cell payload.

ATM cell

A cell that is 53 bytes long and consists of a 5-byte header that contains the address and a 48-byte information (payload) field. Unlike other technologies, such as Ethernet and FDDI, in which variable length frames ranging from very few bytes (64) to many bytes (4500) are transmitted on the media at once, ATM transmits fixed-length cells of 53 bytes on the media. Packets must be segmented into the 48-byte information field of the ATM cells for transfer. This information is then reassembled into a packet at the receiving end.

ATM signaling

A protocol that provides the facilities used by other software to set up required network connections. ATM is a connection-oriented technology. Packets cannot be sent between two nodes (hosts) on an ATM network without first having established a connection.

Classic IP

A method of transporting Internet Protocol (IP) datagrams across ATM networks. The Internet Engineering Task Force (IETF) has defined this standard in RFC 1577, "Classic IP." Other related RFCs are RFC 1483 and RFC 1626.

IP encapsulation

The method of carrying Internet Protocol (IP) traffic over an ATM network.

Permanent Virtual Circuit (PVC)

A circuit through an ATM network; it is used for dedicated, long-term information transfer between locations.

Q.2931 signaling

The standards-based ATM signaling protocol. The ATM Forum developed the Q.2931 signaling protocol. It is specified in the User-Network Interface (UNI) 3.0 specification.

segmentation and reassembly

Segmentation is the process in which a packet is broken up to fit into the 48-byte information field of an ATM cell when transmitted. Reassembly is the reverse process, which puts the cells back together into a packet. SAR is the common term used when discussing this process.

Simple Protocol for ATM Network Signaling (SPANS)

A signaling protocol.

Switched Virtual Circuit (SVC)

A circuit through an ATM network; it is used for information transfer between two locations, lasting only for the duration of the transfer.

virtual channel (VC)

A connection between two communicating ATM entities. It may consist of a concatenation of several ATM links. All communications proceed along this same VC, which preserves cell sequence and provides a certain grade or quality of service. ATM uses the concept of VCs and virtual paths (VPs) to accomplish routing of ATM cells between end users.

Although the VCs are associated with a VP, they are not unbundled or processed in any way. The cell sequence of each VC is still preserved and the grade of service of the VP is established by the most demanding of the constituent VCs. The ATM cell header contains both the Virtual Path Identifier (VPI) and Virtual Channel Identifier (VCI), allowing each ATM cell to be given a unique VC identifier and to be associated with a particular VP by having its VPI in common with other VCs. A cell also may not be associated with any VP, in which case it would have null VPI and only a unique VCI.

Virtual Channel Identifier (VCI)

The address or label of a virtual channel (VC).

virtual path (VP)

A group of virtual channels (VCs) carried between two points. VPs may involve many ATM links. VPs provide a convenient way of bundling traffic heading to the same destination.

Because the ATM cell header contains all of the virtual path and circuit information, each cell is a stand-alone entity, and the ATM switch equipment can route it through the network quickly and efficiently.

Virtual Path Identifier (VPI)

The address or label of a virtual path (VP).