

## **Asynchronous Transfer Mode (ATM)**

Asynchronous Transfer Mode (ATM) is a connection-oriented technology for communication of data where data is converted into fixed and small size cells. The "Asynchronous" in ATM means that the technology does not use a timer or any fixed speed for transmission of the information, but based on the hardware and flow reliability of the information ATM does the negotiation at the speed of the transmission. And in its name "transfer mode" means that the cells of fixed size are used by the ATM for information packaging.

### **ATM Layers**

- **ATM Adaptation Layer (AAL)**

It is a layer for isolation of Higher layer protocols and ATM processes details and user data prepared by it for converting it into cells with payload of 48 bytes. Transmission coming upper layer services is accepted by the AAL protocol and helps in application mapping, e.g., voice, and data to the ATM cells.

- **ATM Layer**

Transmission, congestion, sequential delivery, switching, control, cell header processing, etc., is handled by it. And it is also responsible for simultaneously cell multiplexing and cell relay.

- **Physical Layer**

Medium-dependent transmission is managed by it. The transmission convergence sublayer and physical medium-dependent sublayer are two divisions of this layer. The main functions of this layer are given below:

- Cells are converted into a bit stream by it
- In the physical medium transmission and receipt of bits are controlled by it.
- ATM cell boundaries can also be tracked by it.
- It looks for cell packaging into proper frame types.

### **Notable differences between ATM and Internet**

- Internet Protocol (IP) is connectionless implying bandwidth cannot be reserved in advance. ATM is connection-oriented implying requirements need to be specified before using the network.
- In IP, each packet is addressed and processed individually which can be inefficient for continuous media like voice and video.
- Current IP uses 4-byte addresses. (e.g., 123.45.65.89), there is not enough IP addresses for global communication. ATM uses 20-byte addresses.