# ATM Overview

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# Asynchronous Transfer Mode

- Consists of Switches connected by circuits.
  (A model which was developed in 1878)
- A network technology for both LANs and WANs that supports realtime voice and video as well as data. The topology uses switches that establish a logical circuit from end to end, which guarantees quality of service (QoS).

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# Asynchronous Transfer Mode

- History
- Cell relay
- Circuit emulation
- Private Networks
- Virtual Networks
- Quality of Service (QoS)

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ATM Overview

## History of ATM

- ATM came on the scene in the early 1990s. Originally was to be end-to-end to the desktop.
- Gigabit Ethernet heralded the demise of ATM in the local area networking.
- ATM's success is in carrier networking where QoS is essential.

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## Cell Relay

- ATM is a type of cell-relay, derived from frame-relay technology
- The Basic ATM cell is 53 bytes, containing a 5 byte header and a 48 byte payload.
- Trafic is segmented into cells at the source and reassembled at the destination.
- Cell Relay is also known as Packet relay

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## Circuit Emulation

- A virtual circuit service offered to users where the characteristics of an actual bit stream are emulated.
- Digital Signal (DS) levels include:
  - DS-0 64 Kbps
  - DS-1 1.544 Mbps (T-1)
  - DS-2 6.312 Mbps
  - DS-3 44.736 Mbps

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## Private Networks

- A Communications network comprised of deticated circuits where bandwidth is dedicated and network management is much simpler
- Very expensive.

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## Virtual Network

- PVC- Permanent (or provisioned) virtual connection.  A virtual connection provisioned for indefinite use in an ATM network.
- Virtual Circuit.  A connection across the network between a source and a destination where a fixed route is chosen for the session and bandwidth is dynamically allocated

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## Quality of Service (QoS)

- The ATM performance parameters that characterize the traffic over a virtual connection.

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## Quality of Service (QoS)

- QoS classes
  - Class 0 Best Effort
  - Class 1 circuit emulation, constant bit rate uncompressed video
  - Class 2 variable bit rate (audio & video), delay-dependent connection-oriented service
  - Class 3 connection-oriented data transfer, delay independent.
  - Class 4 connectionless data transfer.

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## Asynchronous Transfer Mode

ATM is an integrated solution for all data types, including voice, video fax, image, and computer data, realtime, and non-realtime, compressed and uncompressed data.

ATM does it all, simultaneously, and with guaranteed QoS.

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## For more information

- Internet search "ATM Tutorial"
- ATM Lexicon
  - http://www.tticom.com/atmglosy/atmlex.htm

  - Circuits, Packets, Frames and Cells
  - http://www.commweb.com/article/COM20010327S0006

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