# Asynchronous Transfer Mode (ATM)

نیمسال نخست ۱۳۹۳-۱۳۹۴

## Introduction

Broadband Integrated Services Digital Network (B-ISDN) is "a telecommunications concept defined by ANSI and ITU (formerly CCITT) standards for carriage of a complete range of user traffic, including voice, data, and video signals".

- ATM was developed to meet the needs of the Broadband Integrated Services Digital Network, as defined in the late 1980s, and designed to unify telecommunication and computer networks.

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# Introduction

- ATM provides functionality that is similar to **both circuit switching and packet switching** networks: ATM uses asynchronous time-division multiplexing, and encodes data into small, fixed-sized packets (ISO-OSI frames) called **cells**. This differs from approaches such as the Internet Protocol or Ethernet that use variable sized packets and frames.

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# Introduction

- ATM uses a **connection-oriented model** in which a virtual circuit must be established between two endpoints before the actual data exchange begins.
- These virtual circuits may be "permanent", i.e. dedicated connections that are usually preconfigured by the service provider, or "switched", i.e. set up on a per-call basis using signalling and disconnected when the call is terminated.

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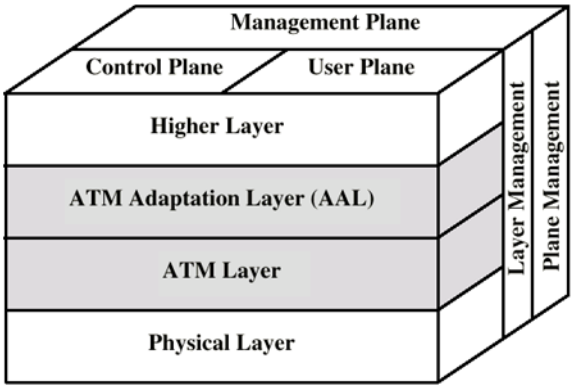
# ATM Architecture




- The reference model for ATM approximately maps to the three lowest layers of the ISO-OSI reference model: network layer, data link layer, and physical layer.

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# ATM Architecture

- **User plane** provides for user information transfer, along with associated control (e.g., flow control, error control).
- **Control plane** performs call control and connection control functions.
- **Management plane** includes plane management, which performs management functions related to a system as a whole and provides coordination between all the planes. Layer management performs management functions relating to resources and parameters residing in its protocol entities.

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