ATM

Asynchronous transfer mode
Used for long-haul, high-speed transmission of data
Link layer
Connection-oriented
Packet-switching
Typically used over SONET
  - OC-192
Designed to operate on links >= 155 Mbps

ATM: data

- Fixed-size “cells”
  - 48 byte payload, 5 byte header
- Advantages:
  - easy to implement switching in hardware (faster than software)
  - parallel processing of cells
  - cuts down on “jitter”
- Disadvantages:
  - may not preserve message boundaries
  - may need to “pad” cells containing short messages

A quick diversion: jitter

- Definition: variation in packet delay
- Typically a result of queueing delays in the network
- Why is this a performance issue?
  - some apps (video, etc) rely on regular arrival of frames
  - can mitigate its effects at the application level if we know the upper and lower bounds of the delay
ATM cells

- Use a 24-bit ID
  - 8 bits: VPI (virtual path ID)
  - 16 bits: VCI
- VPI: used in WAN
- VCI: used in local network
- Use CRC on the cell's header only
  - error detection on data handled by lower layers
  - prevents misrouting cells