CS 640: Introduction to Computer Networks

Aditya Akella

Lecture 7 -
Ethernet, Bridges,
Learning and Spanning Tree

Multiple Access Protocols

- Prevent two or more nodes from transmitting at the same time over a *broadcast* channel.
  - If they do, we have a *collision*, and receivers will not be able to interpret the signal

- Several classes of multiple access protocols.
  - Partitioning the channel, e.g. frequency-division or time division multiplexing
  - Taking turns, e.g. token-based, reservation-based protocols, polling based
  - Contention based protocols, e.g. Aloha, Ethernet

Desirable MAC Properties

Broadcast channel of capacity R bps.

- 1 node → throughput = R bps
- N nodes → throughput = R/N bps, on average
- Decentralized
- Simple, inexpensive