Multicast Applications

CSci551: Computer Networks
SP2006 Thursday Section
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Multicast vs. Unicast

- why are multicast apps different (maybe harder) than unicast?
  - ACK implosion: one sender many receivers
  - sender keeping info about all receives (like RTT)
  - recievers (or routers?) must handle reliablity
  - receiver heterogenity (ex: congestion control, available bandwidth)
    - could make users pick which bitrate (ex: class webcast)
    - or could use *layered coding*

Multicast Apps

- adaptive vs. fixed
- loss-tolerant vs. loss-intolerant
- delay sensitive vs. delay-tolerant
- sender vs. receiver driven
- interactive audio/video
  - xxx
- non-interactive a/v
  - xxx
- file transfer
  - xxx
- games
  - xxx

Design Problems and Approaches

- synchronization
  - randomize response time
- response implosion
  - suppress duplicate responses
  - and/or use NACKs rather than ACK
  - or do aggregation in the network
- late joiners
- heterogeneous receivers
  - layered coding, independent different bitrate streams
- unnecessary bandwidth usage (exposure)
  - sometimes NACKs and repairs go to group members who don't need them