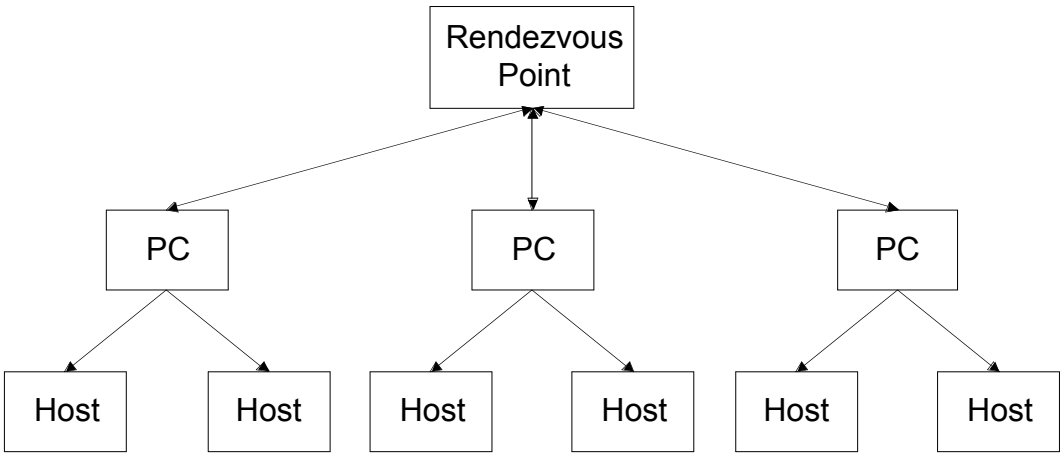
CSE 588 – Network Systems

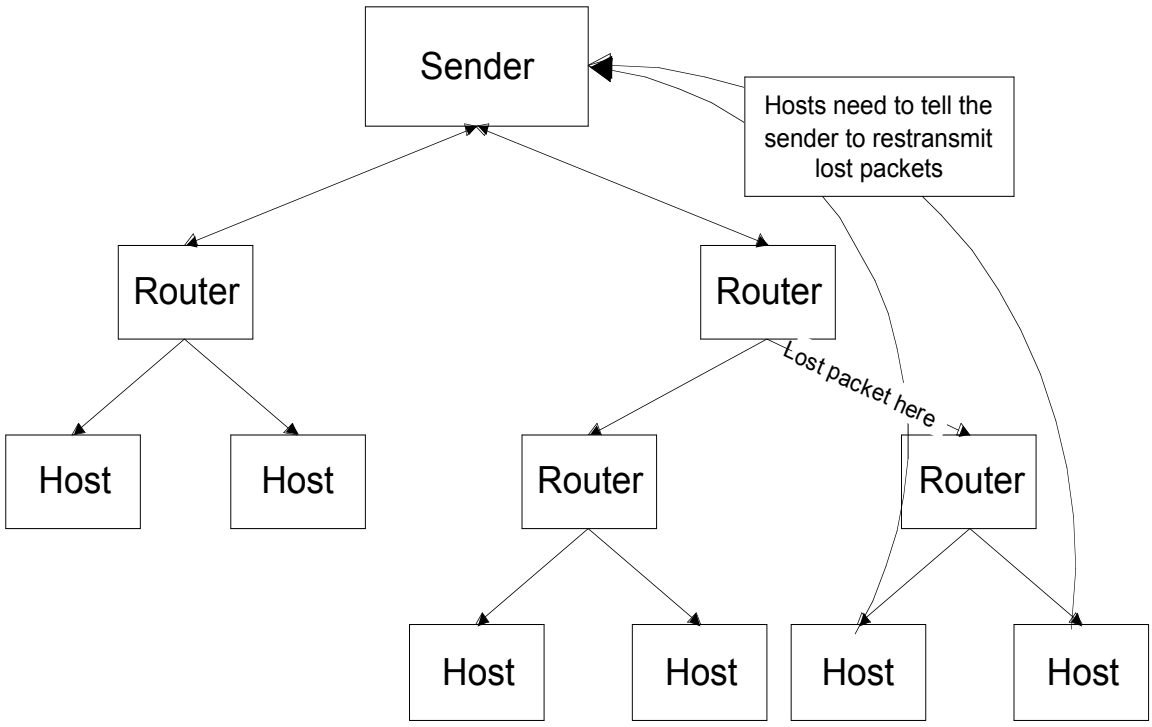
Notes from the second half of lecture 8 – May 21, 2002
Matt Lyons

Overlay Routing



This is similar to what Real Network and Gnutella do.

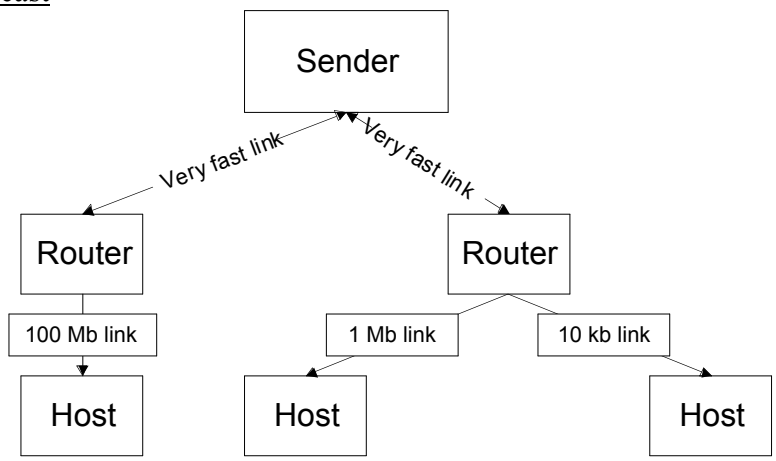
Reliable Multicast Transport



How should the hosts inform the sender to retransmit packets?

- Ack every received packet _ floods sender for sure
- Nack all missing packets _ potentially floods the sender
- Merge nacks from children going back to the sender _ sender only needs to save state per group
- Heterogeneous bandwidths _ persistent loses

Layered Multicast



Different layers have different quality/compressions (fast video, choppy video, audio) to allow heterogeneous bandwidths to access the stream.

Tornado codes help with forward error correction. You only need to receive n of m (where n < m) packets to read the data.

Scalable Reliable Multicast (multicast nacks so anyone can retransmit lost packets, not just the sender)

- Randomized timers to send nack (based on distance to sender)
- If you hear a nack and you were going to send one, turn off your timer
- Randomized timers to reply from hosts that properly received the packets in question
- If you hear a reply and you were going to reply, turn off your timer

You could use hop-by-hop retransmission of packets to relieve the sender of the burden of retransmission.

You can combine push/pull by multicasting data to caches that hosts pull from throughout the network.

Dynamic auto-config of layered multicast means you sign up for the slowest layer and keep moving up to faster layers until you find a layer that fails.