

Discussion 1

- CS168 Discussion Section
 - TA: Chang Lan
 - Office Hour:
 - 3-4pm Monday
 - 283H Soda
-

Nodal Delay

Processing + Queuing

Processing Delay

- Processing on reception
- Examine header and determine where to send
- Error checking (maybe)

Queuing Delay

- Time packet spends in buffer/queue
- Only when arrival rate $>$ service rate
- Especially significant when packet arrivals are bursty

Transmission Delay

- Time taken to push data onto link
- Measured

- from when first bit of data pushed onto link
- until last bit of data is pushed onto the link
- Limited by the link **bandwidth**

Propagation Delay

- Time taken by data to transverse link
- Limited by the speed of light

Beyond Nodal Delays

- End-to-End Delay
 - Just the sum of the nodal delays along a path
- Round Trip Time (RTT)
 - 2x: cue send & response

Virtual Circuits

- Covered more in section 4.2 of text
- Circuit Establishment
 - Source sends a setup packet to switches along path/circuit toward destination
 - Switches along path set up connection
 - At end of path, destination sends confirmation back
- Transfer
 - Data sent along path/circuit
 - Note: Data sent along established circuit is cut-through!
 - cut-through: the switch starts forwarding a packet before the whole packet has been received

- Question: What is the transmission rate of the circuit?
- Circuit Teardown
 - Source sends teardown packet along path
 - Destination sends confirmation back