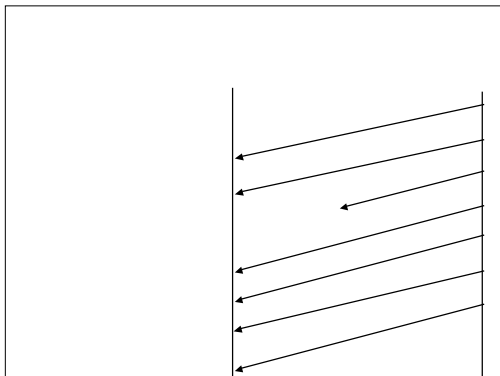


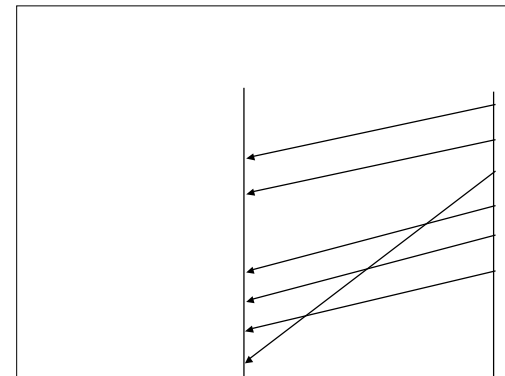
Assignment I

Collect Traces
Compute Throughput/Loss Rate
Compare Different Scenarios

How to tell if a packet is lost from
receiver's TCP trace?

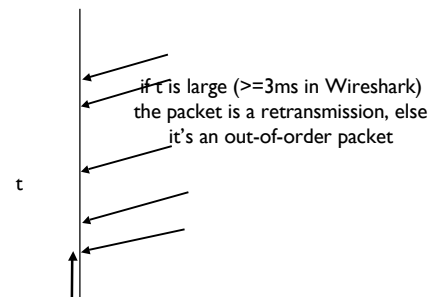
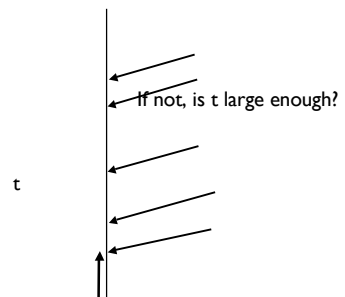
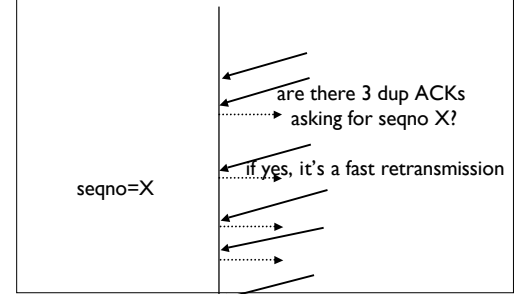


A lost packet +
retransmission leads to
out-of-order packets
(most of the time)

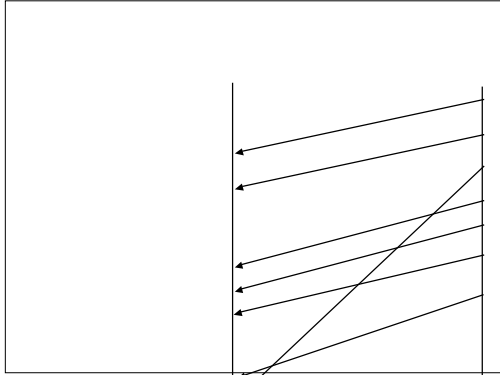


out-of-order packet
does not imply
loss+retransmission

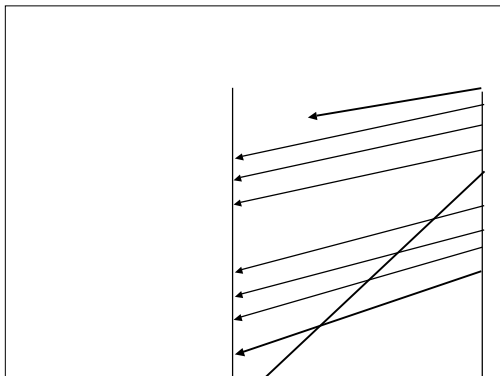
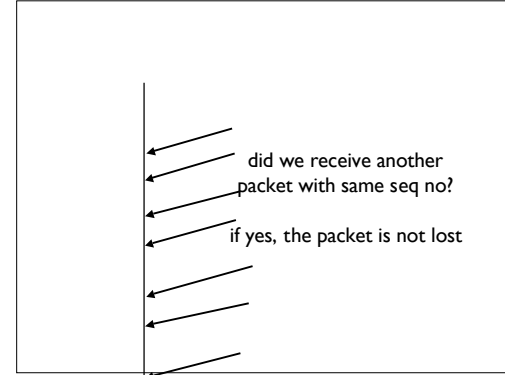
what trigger
retransmission?
timeout or 3 dup ACKs



A lost packet leads to
retransmission



**But retransmission does
not imply packet loss**



**OK, we have to stop
somewhere..**

**Loss packets:
retransmitted packets
without duplicates**

upper or lower bound of
the actual loss rate?

Some lost packets are not
counted

Some counted packets are
not lost (just out-of-order)

Other Methods

Count number of times
windows is halved

Use TCP throughput
Equation

Collect Traces
Compute Throughput/Loss Rate
Compare Different Scenarios

The Expected
Wired > Wireless
Strong Signal > Weak Signal
NUSOPEN > NUS
Evening > Day (at work)
Day > Evening (at home)
Starhub's service varies (640-1350Kbps)

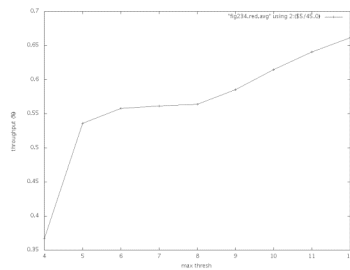
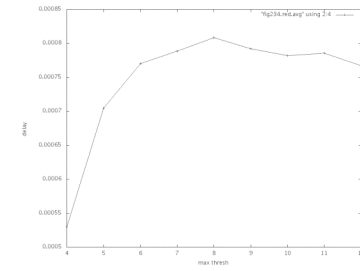
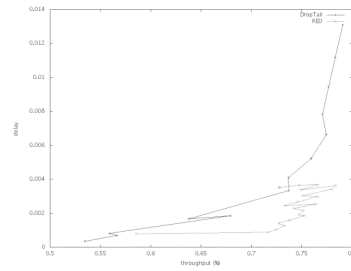
The Unexpected
Wireless@SG is excellent
(~DSL, 350kbps, no loss)
Boon Lay Hostel not too good
(40 kbps, 10% loss)
I²R off-peak 1500kbps !
MI broadband day > evening

Interesting Findings
NUS VPN uses small W_{\max} ?
RTT is as small as 2ms (bug?)
Faster "slow start"?

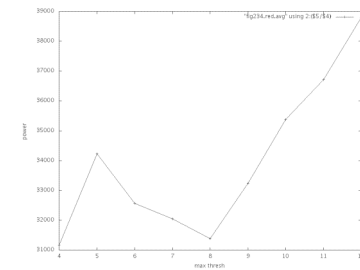
Date: 07/12/2007
Time: 7:30 PM
Duration: 2 h
Location: SR3A/B
Open Book: Y
Answer Book: Y

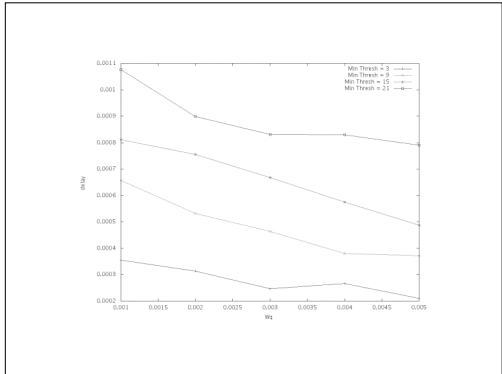
Final Exam Reminder
Bring the papers
Bring calculator
Lecture 1-12 (except 9)

Assignment 2



Max threshold increases,
drop probability reduces,
queue length increases





Min threshold increases,
queue length increases

Q weight increases,
avg Q length fluctuates,
drop more

