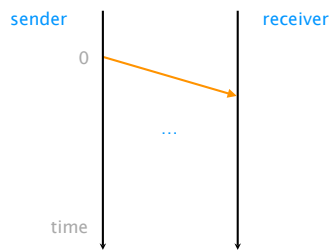# Communication Networks

Prof. Laurent Vanbever

Solution: Exercise 8 – Go-Back-N

8.1 Reliable Transport (Exam Style Question)

Consider a Go-Back-N sender and receiver directly connected by a 10 Mbps link with a propagation delay of 100 milliseconds. The retransmission timer is set to 3 seconds and the window has a length of 4 segments.

Draw a time-sequence diagram (see left) showing the transmission of 10 segments (each segment contains 10 000 bits). An ACK is transmitted as soon as the last bit of the corresponding data segment is received. The size of an ACK is very small, that means they have an negligible transmission delay.

a) Draw the time-sequence diagram for the case where there are no losses.

Solution: The acknowledgments always point to the next expected sequence number and not to one of the received segment. This means that, for example, the segment with sequence number 5 is acknowledged with A6.

sender   receiver

0

time

How long would a transfer take?
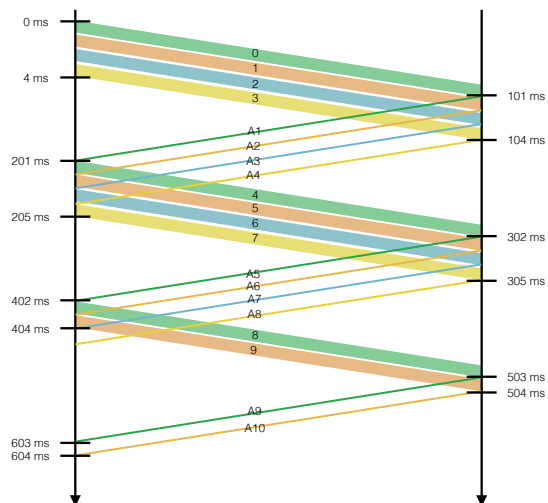
b) Draw the time-sequence diagram for the case where the 3rd and the last segment are lost once.