

Output Trace (Stop & Wait (window = 1))

Case 1: no loss no corruption

-- * Network Simulator v1.0 * --

Enter number of messages to simulate (> 0): [10] 1000

Enter packet loss probability (0.0 for no loss): [0.0] 0.0

Enter packet corruption probability (0.0 for no corruption): [0.0] 0.0

Enter average time between messages from sender's layer 5 (> 0.0): [1000] 200

Enter window size (> 0): [8] 1

Enter retransmission timeout (>0.0) [15.0] 30

Enter trace level (>= 0): [0] 3

Enter random seed: [0] 1234

generateNextArrival(): called

generateNextArrival(): time is 0.0

generateNextArrival(): future time for event 1 at entity 0 will be 43.4339426862392

EVENT time: 43.4339426862392 type: 1 entity: 0

generateNextArrival(): called

generateNextArrival(): time is 43.4339426862392

generateNextArrival(): future time for event 1 at entity 0 will be 67.36045411542099

toLayer3: seqnum: 0 acknum: -1 checksum: 1939 payload: aaaaaaaaaaaaaaaaaaaaaa

toLayer3: scheduling arrival on other side

startTimer: starting timer at 43.4339426862392

EVENT time: 45.66060365611743 type: 2 entity: 1

toLayer3: seqnum: 0 acknum: 1 checksum: 1 payload:

toLayer3: scheduling arrival on other side

EVENT time: 47.569475386822106 type: 2 entity: 0

stopTimer: stopping timer at 47.569475386822106

EVENT time: 67.36045411542099 type: 1 entity: 0

generateNextArrival(): called

generateNextArrival(): time is 67.36045411542099

generateNextArrival(): future time for event 1 at entity 0 will be 83.31553086947233

toLayer3: seqnum: 1 acknum: -1 checksum: 1960 payload: bbbbbbbbbbbbbbbbbbbbbb

toLayer3: scheduling arrival on other side

startTimer: starting timer at 67.36045411542099

EVENT time: 68.78865932187871 type: 2 entity: 1

toLayer3: seqnum: 0 acknum: 0 checksum: 0 payload:

toLayer3: scheduling arrival on other side

EVENT time: 70.75603503524887 type: 2 entity: 0

stopTimer: stopping timer at 70.75603503524887

EVENT time: 83.31553086947233 type: 1 entity: 0
generateNextArrival(): called
generateNextArrival(): time is 83.31553086947233
generateNextArrival(): future time for event 1 at entity 0 will be 238.65474410229803
toLayer3: seqnum: 0 acknum: -1 checksum: 1979 payload: ccccccccccccccccccc
toLayer3: scheduling arrival on other side
startTimer: starting timer at 83.31553086947233

EVENT time: 87.99688711203343 type: 2 entity: 1
toLayer3: seqnum: 0 acknum: 1 checksum: 1 payload:
toLayer3: scheduling arrival on other side

EVENT time: 91.66637165440838 type: 2 entity: 0
stopTimer: stopping timer at 91.66637165440838

EVENT time: 238.65474410229803 type: 1 entity: 0
generateNextArrival(): called
generateNextArrival(): time is 238.65474410229803
generateNextArrival(): future time for event 1 at entity 0 will be 529.581591235084
toLayer3: seqnum: 1 acknum: -1 checksum: 2000 payload: ddddddddddddddddddd
toLayer3: scheduling arrival on other side
startTimer: starting timer at 238.65474410229803

EVENT time: 241.6328928495132 type: 2 entity: 1
toLayer3: seqnum: 0 acknum: 0 checksum: 0 payload:
toLayer3: scheduling arrival on other side

EVENT time: 249.96951200903345 type: 2 entity: 0
stopTimer: stopping timer at 249.96951200903345

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=====STATISTICS=====

Number of original packets transmitted by A:1000
Number of retransmissions by A:0
Number of data packets delivered to layer 5 at B:1000
Number of ACK packets sent by B:1000
Number of corrupted packets:0
Ratio of lost packets:0.0
Ratio of corrupted packets:0.0
Average RTT:10.645246681112164
Average communication time:10.645246681112164

Case 2: loss, no corruption, recovery from data loss, recovery from ACK loss

-- * Network Simulator v1.0 * --

Enter number of messages to simulate (> 0): [10] 1000

Enter packet loss probability (0.0 for no loss): [0.0] 0.3

Enter packet corruption probability (0.0 for no corruption): [0.0] 0.0

Enter average time between messages from sender's layer 5 (> 0.0): [1000] 200

Enter window size (> 0): [8] 1

Enter retransmission timeout (>0.0) [15.0] 30

Enter trace level (>= 0): [0] 3

Enter random seed: [0] 1234

generateNextArrival(): called

generateNextArrival(): time is 0.0

generateNextArrival(): future time for event 1 at entity 0 will be 43.433942686239

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EVENT time: 67.36045411542099 type: 1 entity: 0

generateNextArrival(): called

generateNextArrival(): time is 67.36045411542099

generateNextArrival(): future time for event 1 at entity 0 will be 83.31553086947233

toLayer3: seqnum: 1 acknum: -1 checksum: 1960 payload: bbbbbbbbbbbbbbbbbbbb

toLayer3: packet being lost

startTimer: starting timer at 67.36045411542099

Sending Packet with sequence no 1
but Packet is lost

EVENT time: 83.31553086947233 type: 1 entity: 0

generateNextArrival(): called

generateNextArrival(): time is 83.31553086947233

generateNextArrival(): future time for event 1 at entity 0 will be 238.65474410229803

EVENT time: 97.36045411542099 type: 0 entity: 0

toLayer3: seqnum: 1 acknum: -1 checksum: 1960 payload: bbbbbbbbbbbbbbbbbbbb

toLayer3: packet being lost

stopTimer: stopping timer at 97.36045411542099

stopTimer: Warning: Unable to cancel your timer

startTimer: starting timer at 97.36045411542099

Resending Packet with sequence no 1
but Packet is lost again

EVENT time: 127.36045411542099 type: 0 entity: 0

toLayer3: seqnum: 1 acknum: -1 checksum: 1960 payload: bbbbbbbbbbbbbbbbbbbb

toLayer3: scheduling arrival on other side

stopTimer: stopping timer at 127.36045411542099

stopTimer: Warning: Unable to cancel your timer

startTimer: starting timer at 127.36045411542099

Resending Packet with sequence no 1
succeed

EVENT time: 128.7886593218787 type: 2 entity: 1

toLayer3: seqnum: 0 acknum: 0 checksum: 0 payload:

toLayer3: scheduling arrival on other side

EVENT time: 47.569475386822106 type: 2 entity: 0
stopTimer: stopping timer at 47.569475386822106

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EVENT time: 1468.8802758873255 type: 1 entity: 0
generateNextArrival(): called
generateNextArrival(): time is 1468.8802758873255
generateNextArrival(): future time for event 1 at entity 0 will be 1627.3689992980742
toLayer3: seqnum: 1 acknum: -1 checksum: 2080 payload: hhhhhhhhhhhhhhhhhhhh
toLayer3: scheduling arrival on other side
startTimer: starting timer at 1468.8802758873255

EVENT time: 1476.7922605059966 type: 2 entity: 1
toLayer3: seqnum: 0 acknum: 0 checksum: 0 payload:
toLayer3: packet being lost

Sending ACK for Packet with sequence number 0
but the ACK packet is lost

EVENT time: 1498.8802758873255 type: 0 entity: 0
toLayer3: seqnum: 1 acknum: -1 checksum: 2080 payload: hhhhhhhhhhhhhhhhhhhh
toLayer3: scheduling arrival on other side
stopTimer: stopping timer at 1498.8802758873255
stopTimer: Warning: Unable to cancel your timer
startTimer: starting timer at 1498.8802758873255

Because sender didn't receive the ACK
resent Packet with sequence no 0

EVENT time: 1504.6331064790795 type: 2 entity: 1
toLayer3: seqnum: 0 acknum: 0 checksum: 0 payload:
toLayer3: scheduling arrival on other side

EVENT time: 1509.5561693166906 type: 2 entity: 0
stopTimer: stopping timer at 1509.5561693166906

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=====STATISTICS=====

Number of original packets transmitted by A:1000
Number of retransmissions by A:1080
Number of data packets delivered to layer 5 at B:1000
Number of ACK packets sent by B:1444
Number of corrupted packets:0
Ratio of lost packets:0.3064699205448354
Ratio of corrupted packets:0.0
Average RTT:10.74001072656938
Average communication time:43.1044848475597

Case 3: no loss, corruption, recovery from data corrupt, recovery from ACK corrupt

-- * Network Simulator v1.0 * --

Enter number of messages to simulate (> 0): [10] 1000

Enter packet loss probability (0.0 for no loss): [0.0] 0.0

Enter packet corruption probability (0.0 for no corruption): [0.0] 0.3

Enter average time between messages from sender's layer 5 (> 0.0): [1000] 200

Enter window size (> 0): [8] 1

Enter retransmission timeout (>0.0) [15.0] 30

Enter trace level (>= 0): [0] 3

Enter random seed: [0] 1234

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EVENT time: 11846.516312143316 type: 1 entity: 0

generateNextArrival(): called

generateNextArrival(): time is 11846.516312143316

generateNextArrival(): future time for event 1 at entity 0 will be 12017.603076265756

toLayer3: seqnum: 1 acknum: -1 checksum: 2160 payload: |||

toLayer3: scheduling arrival on other side

startTimer: starting timer at 11846.516312143316

EVENT time: 11854.515640736108 type: 2 entity: 1

toLayer3: seqnum: 0 acknum: 0 checksum: 0 payload:

toLayer3: packet being corrupted

toLayer3: scheduling arrival on other side

ACK packet for Packet with sequence number 0
corrupted

EVENT time: 11857.61217078158 type: 2 entity: 0

EVENT time: 11876.516312143316 type: 0 entity: 0

toLayer3: seqnum: 1 acknum: -1 checksum: 2160 payload: |||

toLayer3: packet being corrupted

toLayer3: scheduling arrival on other side

stopTimer: stopping timer at 11876.516312143316

stopTimer: Warning: Unable to cancel your timer

startTimer: starting timer at 11876.516312143316

Sender resend the data
Packet with sequence number
0, but still corrupted

EVENT time: 11880.988647114476 type: 2 entity: 1

EVENT time: 11906.516312143316 type: 0 entity: 0

toLayer3: seqnum: 1 acknum: -1 checksum: 2160 payload: |||

toLayer3: scheduling arrival on other side

stopTimer: stopping timer at 11906.516312143316

stopTimer: Warning: Unable to cancel your timer

startTimer: starting timer at 11906.516312143316

Sender resend the data
Packet with sequence number
0

EVENT time: 11909.20331431013 type: 2 entity: 1
toLayer3: seqnum: 0 acknum: 0 checksum: 0 payload:
toLayer3: scheduling arrival on other side

EVENT time: 11913.38917203284 type: 2 entity: 0
stopTimer: stopping timer at 11913.38917203284

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=====STATISTICS=====

Number of original packets transmitted by A:1000
Number of retransmissions by A:1055
Number of data packets delivered to layer 5 at B:1000
Number of ACK packets sent by B:1416
Number of corrupted packets:1055
Ratio of lost packets:0.0
Ratio of corrupted packets:0.3039469893402478
Average RTT:10.647202787866393
Average communication time:42.409954863124184

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Case 4: both loss and corrupt

-- * Network Simulator v1.0 * --

Enter number of messages to simulate (> 0): [10] 1000

Enter packet loss probability (0.0 for no loss): [0.0] 0.3

Enter packet corruption probability (0.0 for no corruption): [0.0] 0.3

Enter average time between messages from sender's layer 5 (> 0.0): [1000] 200

Enter window size (> 0): [8] 1

Enter retransmission timeout (>0.0) [15.0] 30

Enter trace level (>= 0): [0] 3

Enter random seed: [0] 1234

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EVENT time: 110828.78810998873 type: 0 entity: 0
toLayer3: seqnum: 0 acknum: -1 checksum: 1979 payload: cccccccccccccccccc
toLayer3: packet being lost
stopTimer: stopping timer at 110828.78810998873
stopTimer: Warning: Unable to cancel your timer
startTimer: starting timer at 110828.78810998873

Sender sent the data Packet
with sequence number 0,
packet being lost

EVENT time: 110858.78810998873 type: 0 entity: 0
toLayer3: seqnum: 0 acknum: -1 checksum: 1979 payload: cccccccccccccccccc

toLayer3: scheduling arrival on other side
stopTimer: stopping timer at 110858.78810998873
stopTimer: Warning: Unable to cancel your timer
startTimer: starting timer at 110858.78810998873

Sender resend the data
Packet with sequence number
0

EVENT time: 110866.95168919952 type: 2 entity: 1
toLayer3: seqnum: 0 acknum: 1 checksum: 1 payload:
toLayer3: packet being corrupted
toLayer3: scheduling arrival on other side

Receiver recieved the data
Packet with sequence number
0, and sent ACK for expected
packet with sequence number
1, but packet is corrupted

EVENT time: 110869.77629932556 type: 2 entity: 0

EVENT time: 110888.78810998873 type: 0 entity: 0
toLayer3: seqnum: 0 acknum: -1 checksum: 1979 payload: ccccccccccccccccccc
toLayer3: scheduling arrival on other side
stopTimer: stopping timer at 110888.78810998873
stopTimer: Warning: Unable to cancel your timer
startTimer: starting timer at 110888.78810998873

sender resent the packet with
sequence number 0, because
didn't receive ACK for this
packet

EVENT time: 110894.02209540088 type: 2 entity: 1
toLayer3: seqnum: 0 acknum: 1 checksum: 1 payload:
toLayer3: scheduling arrival on other side

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=====STATISTICS=====

Number of original packets transmitted by A:1000
Number of retransmissions by A:3175
Number of data packets delivered to layer 5 at B:1000
Number of ACK packets sent by B:1986
Number of corrupted packets:1320
Ratio of lost packets:0.3010874857977601
Ratio of corrupted packets:0.3065490013934046
Average RTT:10.667974614507042
Average communication time:106.03801562547643

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