

----- * Network Simulator Version 1.1 * -----

Enter number of messages to simulate: 1000

Enter packet loss probability [enter 0.0 for no loss]:0.1

Enter packet corruption probability [0.0 for no corruption]:0.1

Enter average time between messages from sender's layer5 [> 0.0]:200

Enter window size [>0]:8

Enter retransmission timeout [> 0.0]:30

Enter trace level:3

Enter random seed: [>0]:1234

GENERATE NEXT ARRIVAL: creating new arrival

INSERTEVENT: time is 0.000000

INSERTEVENT: future time will be 43.433943

Receiver B is waiting for message 0

Sender A is expecting ACK 1

EVENT time: 43.433943, type: 1, fromlayer5 entity: 0

GENERATE NEXT ARRIVAL: creating new arrival

INSERTEVENT: time is 43.433943

INSERTEVENT: future time will be 67.360454

TOLAYER3: seq: 0, ack 0, check: 1853 TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 43.433943

INSERTEVENT: future time will be 45.660604

A_output - message 0 sent

A_output - Timer started for initial packet START TIMER: starting timer at 43.433943

INSERTEVENT: time is 43.433943

INSERTEVENT: future time will be 73.433943

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CASE 1 (Packet 3 is successfully received)

B_input - Message 2 received, sent to layer 5

TOLAYER3: seq: 2, ack 3, check: 212 TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 104.009186

INSERTEVENT: future time will be 107.678671

B_input - ACK 3 sent

waiting for message 3

EVENT time: 107.678671, type: 2, fromlayer3 entity: 0

A_input - ACK 3 received

A_input - Expecting ACK 4

STOP TIMER: stopping timer at 107.678671

EVENT time: 238.654744, type: 1, fromlayer5 entity: 0

GENERATE NEXT ARRIVAL: creating new arrival

INSERTEVENT: time is 238.654744

INSERTEVENT: future time will be 529.581591

TOLAYER3: seq: 3, ack 3, check: 1916 TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 238.654744

INSERTEVENT: future time will be 241.632893

A_output - message 3 sent

A_output - Timer started for initial packet START TIMER: starting timer at 238.654744

INSERTEVENT: time is 238.654744

INSERTEVENT: future time will be 268.654744

EVENT time: 241.632893, type: 2, fromlayer3 entity: 1

B_input - Message 3 received, sent to layer 5

TOLAYER3: seq: 3, ack 4, check: 214 TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 241.632893

INSERTEVENT: future time will be 249.969512

B_input - ACK 4 sent

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CASE 2 (Packet 15 is lost and next ack is sent for packet 16)

EVENT time: 2714.501205, type: 2, fromlayer3 entity: 1

B_input - Message 14 received, sent to layer 5

TOLAYER3: seq: 14, ack 15, check: 236 TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 2714.501205

INSERTEVENT: future time will be 2724.013672

B_input - ACK 15 sent

waiting for message 15

EVENT time: 2720.236824, type: 1, fromlayer5 entity: 0

GENERATE NEXT ARRIVAL: creating new arrival

INSERTEVENT: time is 2720.236824

INSERTEVENT: future time will be 3072.298349

TOLAYER3: seq: 15, ack 15, check: 2168 TOLAYER3: packet being corrupted

TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 2720.236824

INSERTEVENT: future time will be 2730.151402

A_output - message 15 sent

EVENT time: 2724.013672, type: 2, fromlayer3 entity: 0

A_input - ACK 15 received

A_input - Expecting ACK 16

STOP TIMER: stopping timer at 2724.013672

START TIMER: starting timer at 2724.013672

INSERTEVENT: time is 2724.013672

INSERTEVENT: future time will be 2754.013672

EVENT time: 2730.151402, type: 2, fromlayer3 entity: 1

B_input - Checksum error! 1002152 != 2168,

expected message 15 is corrupt

EVENT time: 2754.013672, type: 0, timerinterrupt entity: 0

A_timerinterrupt - Timeout, resending packets in window

START TIMER: starting timer at 2754.013672

INSERTEVENT: time is 2754.013672

INSERTEVENT: future time will be 2784.013672

Resending first packet of window, starttimer

Retransmitting packet with message 15

TOLAYER3: seq: 15, ack 15, check: 2168 TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 2754.013672

INSERTEVENT: future time will be 2762.344249

EVENT time: 2762.344249, type: 2, fromlayer3 entity: 1

B_input - Message 15 received, sent to layer 5

TOLAYER3: seq: 15, ack 16, check: 238 TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 2762.344249

INSERTEVENT: future time will be 2769.763482

B_input - ACK 16 sent

waiting for message 16

EVENT time: 2769.763482, type: 2, fromlayer3 entity: 0

A_input - ACK 16 received

A_input - Expecting ACK 17

STOP TIMER: stopping timer at 2769.763482

EVENT time: 3072.298349, type: 1, fromlayer5 entity: 0

GENERATE NEXT ARRIVAL: creating new arrival

INSERTEVENT: time is 3072.298349

INSERTEVENT: future time will be 3329.898984

TOLAYER3: seq: 16, ack 16, check: 2189 TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 3072.298349

INSERTEVENT: future time will be 3081.896786

A_output - message 16 sent

A_output - Timer started for initial packet START TIMER: starting timer at 3072.298349

INSERTEVENT: time is 3072.298349

INSERTEVENT: future time will be 3102.298349

EVENT time: 3081.896786, type: 2, fromlayer3 entity: 1

B_input - Message 16 received, sent to layer 5

TOLAYER3: seq: 16, ack 17, check: 240 TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 3081.896786

INSERTEVENT: future time will be 3085.817042

B_input - ACK 17 sent

waiting for message 17

EVENT time: 3085.817042, type: 2, fromlayer3 entity: 0

A_input - ACK 17 received

A_input - Expecting ACK 18

STOP TIMER: stopping timer at 3085.817042

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CASE 4 (Packet 27 is lost and data is retransmitted using duplicate ACK)

B_input - ACK 28 sent

waiting for message 28

EVENT time: 4688.180792, type: 0, timerinterrupt entity: 0

A_timerinterrupt - Timeout, resending packets in window

START TIMER: starting timer at 4688.180792

INSERTEVENT: time is 4688.180792

INSERTEVENT: future time will be 4718.180792

Resending first packet of window, starttimer

Retransmitting packet with message 27

TOLAYER3: packet being lost

EVENT time: 4718.180792, type: 0, timerinterrupt entity: 0

A_timerinterrupt - Timeout, resending packets in window

START TIMER: starting timer at 4718.180792

INSERTEVENT: time is 4718.180792

INSERTEVENT: future time will be 4748.180792

Resending first packet of window, starttimer

Retransmitting packet with message 27

TOLAYER3: seq: 27, ack 27, check: 1926 TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 4718.180792

INSERTEVENT: future time will be 4726.721213

EVENT time: 4726.721213, type: 2, fromlayer3 entity: 1

B_input - Message 27 received, already received, dropped, sending ACK

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Case 3 (Packet 34 is retransmitted after RTO)

B_input - ACK 34 sent

waiting for message 34

EVENT time: 5645.437513, type: 2, fromlayer3 entity: 0

A_input - ACK 34 received

A_input - Expecting ACK 35

STOP TIMER: stopping timer at 5645.437513

EVENT time: 5999.414045, type: 1, fromlayer5 entity: 0

GENERATE NEXT ARRIVAL: creating new arrival

INSERTEVENT: time is 5999.414045

INSERTEVENT: future time will be 6375.267800

TOLAYER3: seq: 34, ack 34, check: 2073 TOLAYER3: packet being corrupted

TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 5999.414045

INSERTEVENT: future time will be 6006.390515

A_output - message 34 sent

A_output - Timer started for initial packet START TIMER: starting timer at 5999.414045

INSERTEVENT: time is 5999.414045

INSERTEVENT: future time will be 6029.414045

EVENT time: 6006.390515, type: 2, fromlayer3 entity: 1

B_input - Checksum error! 1002038 != 2073,

expected message 34 is corrupt

EVENT time: 6029.414045, type: 0, timerinterrupt entity: 0

A_timerinterrupt - Timeout, resending packets in window

START TIMER: starting timer at 6029.414045

INSERTEVENT: time is 6029.414045

INSERTEVENT: future time will be 6059.414045

Resending first packet of window, starttimer

Retransmitting packet with message 34

TOLAYER3: seq: 34, ack 34, check: 2073 TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 6029.414045

INSERTEVENT: future time will be 6031.375378

EVENT time: 6031.375378, type: 2, fromlayer3 entity: 1

B_input - Message 34 received, sent to layer 5

TOLAYER3: seq: 34, ack 35, check: 276 TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 6031.375378

INSERTEVENT: future time will be 6039.061861

B_input - ACK 35 sent

waiting for message 35

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Case 5 (packet 51 is lost and data is delivered and ACK moves by more than 1)

B_input - ACK 51 sent

waiting for message 51

EVENT time: 9478.519425, type: 2, fromlayer3 entity: 0

A_input - ACK 51 received

A_input - Expecting ACK 52

STOP TIMER: stopping timer at 9478.519425

EVENT time: 9596.508683, type: 1, fromlayer5 entity: 0

GENERATE NEXT ARRIVAL: creating new arrival

INSERTEVENT: time is 9596.508683

INSERTEVENT: future time will be 9623.596912

TOLAYER3: seq: 51, ack 51, check: 2430 TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 9596.508683

INSERTEVENT: future time will be 9599.311869

A_output - message 51 sent

A_output - Timer started for initial packet START TIMER: starting timer at 9596.508683

 INSERTEVENT: time is 9596.508683

 INSERTEVENT: future time will be 9626.508683

EVENT time: 9599.311869, type: 2, fromlayer3 entity: 1

B_input - Message 51 received, sent to layer 5

 TOLAYER3: packet being lost

B_input - ACK 52 sent

waiting for message 52

EVENT time: 9623.596912, type: 1, fromlayer5 entity: 0

 GENERATE NEXT ARRIVAL: creating new arrival

 INSERTEVENT: time is 9623.596912

 INSERTEVENT: future time will be 9819.196142

 TOLAYER3: seq: 52, ack 52, check: 1957 TOLAYER3: scheduling arrival on other side

 INSERTEVENT: time is 9623.596912

 INSERTEVENT: future time will be 9628.201086

A_output - message 52 sent

EVENT time: 9626.508683, type: 0, timerinterrupt entity: 0

A_timerinterrupt - Timeout, resending packets in window

 START TIMER: starting timer at 9626.508683

 INSERTEVENT: time is 9626.508683

 INSERTEVENT: future time will be 9656.508683

Resending first packet of window, starttimer

Retransmitting packet with message 51

TOLAYER3: seq: 51, ack 51, check: 2430 TOLAYER3: scheduling arrival on other side

INSERTEVENT: time is 9626.508683

INSERTEVENT: future time will be 9636.289956

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waiting for message 1000

EVENT time: 198305.163762, type: 2, fromlayer3 entity: 0

A_input - ACK 1000 received

A_input - Expecting ACK 1001

STOP TIMER: stopping timer at 198305.163762

EVENT time: 198414.697714, type: 1, fromlayer5 entity: 0

GENERATE NEXT ARRIVAL: creating new arrival

INSERTEVENT: time is 198414.697714

INSERTEVENT: future time will be 198541.203040

=====STATISTICS=====

Number of original packets transmitted by A: 1000

Number of retransmissions by A: 515

Number of data packets delivered to layer 5 at B: 1000

Number of ACK packets sent by B: 1219

Number of corrupted packets: 117

Ratio of lost packets: 10.00%

Ratio of corrupted packets: 8.00%

Average RTT: 765.776

Average communication time: 198.415

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EXTRA:

Simulator terminated at time 198414.697714163540

Process exited after 135.7 seconds with return value 0

Press any key to continue . . .