

Rakshit Shetty

rshetty

person# 50133314

I have read and understood the course academic integrity policy located under this link:
http://www.cse.buffalo.edu/faculty/dimitrio/courses/cse4589_f14/index.html#integrity

Timeout scheme

ABT:

The timer is started each time a packet sent and when a timer interrupt occurs we send the message again.

GBN:

The timer is started when sending the base. A time vector is maintained which has timeout for all packets, as soon as the base shifts we set the timer to the next minimum value. When a timer interrupt occurs we send all the packets in the holding vector.

SR:

A time vector is maintained for all the sent packets consisting of the timeouts. If the acknowledgment is of the base then we set the timer to the next minimum or else if we receive out of order packets at the sender then we set the corresponding time vector entry to infinity and when timer interrupt occurs we send the packets with least value in the vector.

Implementation of multiple software timers using single hardware timer in SR

We have two vectors holdingvector and timevector. Holdingvector is the sending buffer and the time vector includes the timeout of that particular packet. If the acknowledgment is of the base then we set the timer to the next minimum or else if we receive out of order packets at the sender then we set the corresponding time vector entry to infinity and when timer interrupt occurs we send the packets with least value in the vector. At the receiving end we have a receiving vector which is responsible for sending the packets to the application layer. When we receive out of order packets then the receiving vector inserts a dummy packet in place of all the packets till the received packet i.e from the expected packet to the received packet. At the sender side, the out of order packets we assign infinity in time

vector and when we receive the expected packet then we remove that packet and all the packets which have infinity in their timevector entry.

Section 4.1 Protocol validation

ABT

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,10,0.2,0.2,1000.0,10,21,19,9,10943.241211,0.000822
2,10,0.2,0.2,1000.0,10,27,19,7,10383.534180,0.000674
3,10,0.2,0.2,1000.0,10,20,15,9,11044.596680,0.000815
4,10,0.2,0.2,1000.0,10,21,16,9,9630.419922,0.000935
5,10,0.2,0.2,1000.0,10,26,23,9,8172.430664,0.001101
6,10,0.2,0.2,1000.0,10,16,12,8,12913.808594,0.000619
7,10,0.2,0.2,1000.0,10,21,15,7,8021.557617,0.000873
8,10,0.2,0.2,1000.0,10,17,14,9,8647.589844,0.001041
9,10,0.2,0.2,1000.0,10,22,18,9,8782.078125,0.001025
10,10,0.2,0.2,1000.0,10,40,33,9,12447.961914,0.000723
```

GBN

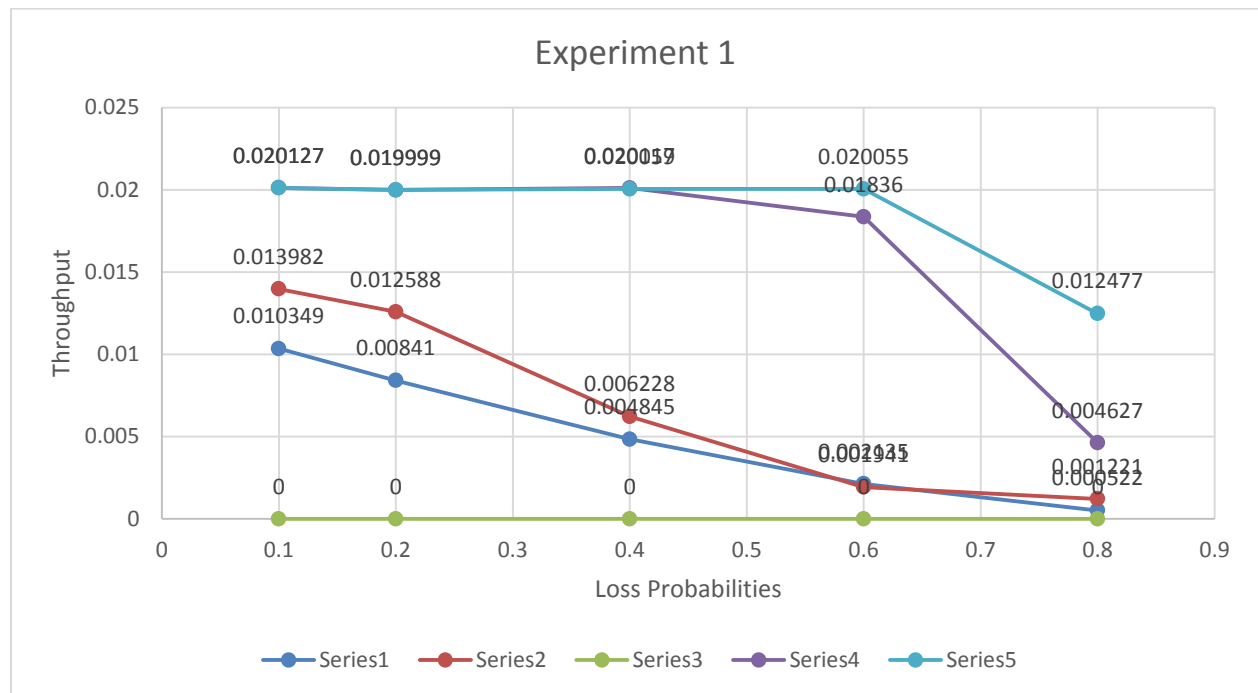
```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,20,0.2,0.2,50.0,20,169,67,15,902.184204,0.016626
2,20,0.2,0.2,50.0,20,42,32,19,1128.014404,0.016844
3,20,0.2,0.2,50.0,20,49,40,19,852.482239,0.022288
4,20,0.2,0.2,50.0,20,48,36,18,955.981873,0.018829
5,20,0.2,0.2,50.0,20,39,33,19,1046.696899,0.018152
6,20,0.2,0.2,50.0,20,47,32,19,1268.318115,0.014980
7,20,0.2,0.2,50.0,20,50,41,19,919.479187,0.020664
8,20,0.2,0.2,50.0,20,37,30,19,1072.226562,0.017720
9,20,0.2,0.2,50.0,20,45,36,19,1062.040527,0.017890
10,20,0.2,0.2,50.0,20,67,50,18,987.464233,0.018229
```

SR

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,20,0.2,0.2,50.0,20,52,42,19,1076.157959,0.017655
2,20,0.2,0.2,50.0,20,46,34,19,1029.728271,0.018451
3,20,0.2,0.2,50.0,20,43,31,19,1112.612915,0.017077
4,20,0.2,0.2,50.0,20,44,37,18,966.267639,0.018628
5,20,0.2,0.2,50.0,20,40,34,18,838.439514,0.021468
6,20,0.2,0.2,50.0,20,53,38,19,1265.646851,0.015012
7,20,0.2,0.2,50.0,20,38,33,19,1014.332031,0.018732
8,20,0.2,0.2,50.0,20,43,34,19,962.028992,0.019750
9,20,0.2,0.2,50.0,20,49,38,19,1051.835938,0.018064
10,20,0.2,0.2,50.0,20,66,52,18,1005.919739,0.017894
```

Section 4.2.1 Experiment 1

Loss Probabilities	ABT	GBN (W=10)	GBN (W=50)	SR (W=10)	SR (W=50)
0.1	0.0103494	0.013982	0	0.020127	0.020127
0.2	0.0084105	0.012588	0	0.019999	0.019999
0.4	0.004845	0.006228	0	0.020117	0.020059
0.6	0.002135	0.001941	0	0.01836	0.020055
0.8	0.000522	0.001221	0	0.004627	0.012477



-m : no of messages

-l : loss probabilities

-c : corruption

-t : time between messages

-w : window size

ABT -m 1000 - l 0.1 -c 0.2 - t 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.1,0.2,50.0,1000,1024,948,557,51464.796875,0.010823
2,1000,0.1,0.2,50.0,1000,1006,902,524,50414.105469,0.010394
3,1000,0.1,0.2,50.0,1000,1000,895,494,50596.417969,0.009764
4,1000,0.1,0.2,50.0,1000,978,882,524,48792.652344,0.010739
5,1000,0.1,0.2,50.0,1000,1008,918,565,50692.371094,0.011146
6,1000,0.1,0.2,50.0,1000,991,900,518,50368.578125,0.010284
7,1000,0.1,0.2,50.0,1000,1011,916,504,50635.238281,0.009954
8,1000,0.1,0.2,50.0,1000,988,896,517,49119.792969,0.010525
9,1000,0.1,0.2,50.0,1000,1008,898,500,50954.925781,0.009813
10,1000,0.1,0.2,50.0,1000,1007,901,514,51134.328125,0.010052
```

ABT -m 1000 - l 0.2 -c 0.2 - t 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.2,0.2,50.0,1000,1030,838,434,51437.429688,0.008437
2,1000,0.2,0.2,50.0,1000,1000,792,406,49562.210938,0.008192
3,1000,0.2,0.2,50.0,1000,979,802,420,48017.746094,0.008747
4,1000,0.2,0.2,50.0,1000,994,788,413,49201.925781,0.008394
5,1000,0.2,0.2,50.0,1000,1000,822,449,49573.515625,0.009057
6,1000,0.2,0.2,50.0,1000,1019,814,421,51103.289062,0.008238
7,1000,0.2,0.2,50.0,1000,1006,802,409,49558.328125,0.008253
8,1000,0.2,0.2,50.0,1000,980,791,411,48186.667969,0.008529
9,1000,0.2,0.2,50.0,1000,1028,810,414,51408.859375,0.008053
10,1000,0.2,0.2,50.0,1000,1029,800,418,50949.707031,0.008204
```

ABT -m 1000 - l 0.4 -c 0.2 - t 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.4,0.2,50.0,1000,1017,624,246,50504.402344,0.004871
2,1000,0.4,0.2,50.0,1000,1026,646,245,50195.691406,0.004881
3,1000,0.4,0.2,50.0,1000,1004,628,234,49514.957031,0.004726
4,1000,0.4,0.2,50.0,1000,1014,609,244,50238.019531,0.004857
5,1000,0.4,0.2,50.0,1000,992,602,260,49195.671875,0.005285
6,1000,0.4,0.2,50.0,1000,1002,598,226,50171.210938,0.004505
7,1000,0.4,0.2,50.0,1000,1019,602,225,50199.945312,0.004482
8,1000,0.4,0.2,50.0,1000,1007,643,262,50554.519531,0.005183
9,1000,0.4,0.2,50.0,1000,1001,596,236,48935.492188,0.004823
10,1000,0.4,0.2,50.0,1000,1009,613,239,49450.566406,0.004833
```

ABT -m 1000 - l 0.6 -c 0.2 - t 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.6,0.2,50.0,1000,1034,430,120,51827.566406,0.002315
2,1000,0.6,0.2,50.0,1000,996,386,105,49876.789062,0.002105
3,1000,0.6,0.2,50.0,1000,1018,399,93,50914.636719,0.001827
4,1000,0.6,0.2,50.0,1000,1012,394,111,49992.128906,0.002220
5,1000,0.6,0.2,50.0,1000,1021,409,111,50857.605469,0.002183
6,1000,0.6,0.2,50.0,1000,1000,404,116,49524.675781,0.002342
7,1000,0.6,0.2,50.0,1000,999,400,104,49177.308594,0.002115
8,1000,0.6,0.2,50.0,1000,1023,405,97,50912.511719,0.001905
9,1000,0.6,0.2,50.0,1000,997,391,101,49040.875000,0.002060
10,1000,0.6,0.2,50.0,1000,1031,419,116,50887.722656,0.002280
```

ABT -m 1000 - l 0.8 -c 0.2 - t 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.8,0.2,50.0,1000,1002,202,24,50140.859375,0.000479
2,1000,0.8,0.2,50.0,1000,992,209,30,49516.281250,0.000606
3,1000,0.8,0.2,50.0,1000,1022,213,20,51153.851562,0.000391
4,1000,0.8,0.2,50.0,1000,1020,188,19,50967.937500,0.000373
5,1000,0.8,0.2,50.0,1000,1000,224,31,50206.621094,0.000617
6,1000,0.8,0.2,50.0,1000,1026,211,31,51263.687500,0.000605
7,1000,0.8,0.2,50.0,1000,989,200,28,49342.820312,0.000567
8,1000,0.8,0.2,50.0,1000,1011,207,33,50657.464844,0.000651
9,1000,0.8,0.2,50.0,1000,978,180,26,48743.113281,0.000533
0,1000,0.8,0.2,50.0,1000,1007,186,20,50533.351562,0.000396
```

GBN -m 1000 - l 0.1 -c 0.2 - t 50 -w 10

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.1,0.2,50.0,1000,36628,4214,691,49289.339844,0.014019
2,1000,0.1,0.2,50.0,1000,2084,1878,999,51026.308594,0.019578
3,1000,0.1,0.2,50.0,1000,87002,8090,189,49810.714844,0.003794
4,1000,0.1,0.2,50.0,1000,2070,1854,999,50823.613281,0.019656
5,1000,0.1,0.2,50.0,1000,2011,1793,998,51813.335938,0.019261
6,1000,0.1,0.2,50.0,1000,69533,7225,298,49964.617188,0.005964
7,1000,0.1,0.2,50.0,1000,70184,8093,205,51032.972656,0.004017
8,1000,0.1,0.2,50.0,1000,1999,1816,998,51578.425781,0.019349
9,1000,0.1,0.2,50.0,1000,2122,1890,999,50254.566406,0.019879
10,1000,0.1,0.2,50.0,1000,24593,4107,707,49445.613281,0.014299
```

GBN -m 1000 - l 0.2 -c 0.2 - t 50 -w 10

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.2,0.2,50.0,1000,89977,8827,45,49095.589844,0.000917
2,1000,0.2,0.2,50.0,1000,2781,2202,999,51186.710938,0.019517
3,1000,0.2,0.2,50.0,1000,57797,5998,493,49910.187500,0.009878
4,1000,0.2,0.2,50.0,1000,80464,7130,325,50838.101562,0.006393
5,1000,0.2,0.2,50.0,1000,49524,6286,414,50446.609375,0.008207
6,1000,0.2,0.2,50.0,1000,2558,2075,999,50236.941406,0.019886
7,1000,0.2,0.2,50.0,1000,32468,4278,700,49772.808594,0.014064
8,1000,0.2,0.2,50.0,1000,10097,2939,941,50242.949219,0.018729
9,1000,0.2,0.2,50.0,1000,2768,2181,999,48796.722656,0.020473
10,1000,0.2,0.2,50.0,1000,65533,6481,392,50162.347656,0.007815
```

GBN -m 1000 - l 0.4 -c 0.2 - t 50 -w 10

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.4,0.2,50.0,1000,90484,8172,156,49932.683594,0.003124
2,1000,0.4,0.2,50.0,1000,87748,7765,222,49847.058594,0.004454
3,1000,0.4,0.2,50.0,1000,4492,2652,999,50914.835938,0.019621
4,1000,0.4,0.2,50.0,1000,20050,9076,0,50462.566406,0.000000
5,1000,0.4,0.2,50.0,1000,106497,8718,88,49584.878906,0.001775
6,1000,0.4,0.2,50.0,1000,15426,3569,885,50624.398438,0.017482
7,1000,0.4,0.2,50.0,1000,95798,8200,138,48820.695312,0.002827
8,1000,0.4,0.2,50.0,1000,77192,7705,256,51681.167969,0.004953
9,1000,0.4,0.2,50.0,1000,102425,8893,57,49541.203125,0.001151
10,1000,0.4,0.2,50.0,1000,80551,6870,340,49327.855469,0.006893
```

GBN -m 1000 - l 0.6 -c 0.2 - t 50 -w 10

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.6,0.2,50.0,1000,19877,7981,0,50124.941406,0.000000
2,1000,0.6,0.2,50.0,1000,102701,9010,72,50332.441406,0.001430
3,1000,0.6,0.2,50.0,1000,108170,9005,59,49671.281250,0.001188
4,1000,0.6,0.2,50.0,1000,114843,9036,66,50217.699219,0.001314
5,1000,0.6,0.2,50.0,1000,83768,7540,338,50678.765625,0.006669
6,1000,0.6,0.2,50.0,1000,86799,7933,273,51974.031250,0.005253
7,1000,0.6,0.2,50.0,1000,114627,9198,49,50695.644531,0.000967
8,1000,0.6,0.2,50.0,1000,117218,8787,46,49235.234375,0.000934
9,1000,0.6,0.2,50.0,1000,108274,8709,81,49081.144531,0.001650
10,1000,0.6,0.2,50.0,1000,19542,7860,0,49200.625000,0.000000
```

GBN -m 1000 - l 0.8 -c 0.2 - t 50 -w 10

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.8,0.2,50.0,1000,19819,4031,0,49926.187500,0.000000
2,1000,0.8,0.2,50.0,1000,137535,9128,53,50661.289062,0.001046
3,1000,0.8,0.2,50.0,1000,139540,9188,61,50750.945312,0.001202
4,1000,0.8,0.2,50.0,1000,126985,8894,63,49496.312500,0.001273
5,1000,0.8,0.2,50.0,1000,125839,8766,60,49027.609375,0.001224
6,1000,0.8,0.2,50.0,1000,122130,9013,75,50146.503906,0.001496
7,1000,0.8,0.2,50.0,1000,132066,9243,88,50646.812500,0.001738
8,1000,0.8,0.2,50.0,1000,135394,9109,78,50482.046875,0.001545
9,1000,0.8,0.2,50.0,1000,111087,8721,78,48869.746094,0.001596
10,1000,0.8,0.2,50.0,1000,131381,9108,55,50655.996094,0.001086
```

SR -m 1000 - l 0.1 -c 0.2 - t 50 -w 10

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.1,0.2,50.0,1000,1909,1727,999,49915.039062,0.020014
2,1000,0.1,0.2,50.0,1000,1983,1801,999,50402.117188,0.019821
3,1000,0.1,0.2,50.0,1000,1970,1773,999,48734.062500,0.020499
4,1000,0.1,0.2,50.0,1000,1879,1690,999,50643.187500,0.019726
5,1000,0.1,0.2,50.0,1000,1893,1687,999,49831.906250,0.020047
6,1000,0.1,0.2,50.0,1000,1949,1770,999,48077.828125,0.020779
7,1000,0.1,0.2,50.0,1000,1942,1740,999,50148.218750,0.019921
8,1000,0.1,0.2,50.0,1000,1905,1729,999,50656.855469,0.019721
9,1000,0.1,0.2,50.0,1000,1949,1759,998,48403.234375,0.020618
10,1000,0.1,0.2,50.0,1000,1907,1720,999,49632.167969,0.020128
```

SR -m 1000 - l 0.2 -c 0.2 - t 50 -w 10

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.2,0.2,50.0,1000,2402,1934,999,48302.496094,0.020682
2,1000,0.2,0.2,50.0,1000,2419,1944,998,48692.656250,0.020496
3,1000,0.2,0.2,50.0,1000,2507,1982,999,50179.523438,0.019909
4,1000,0.2,0.2,50.0,1000,2459,1972,998,49503.296875,0.020160
5,1000,0.2,0.2,50.0,1000,2383,1926,999,49960.136719,0.019996
6,1000,0.2,0.2,50.0,1000,2511,2010,999,50748.718750,0.019685
7,1000,0.2,0.2,50.0,1000,2552,2040,999,50334.156250,0.019847
8,1000,0.2,0.2,50.0,1000,2434,1958,999,51246.703125,0.019494
9,1000,0.2,0.2,50.0,1000,2437,1922,999,50183.910156,0.019907
10,1000,0.2,0.2,50.0,1000,2416,1940,999,50426.410156,0.019811
```

SR -m 1000 - l 0.4 -c 0.2 - t 50 -w 10


```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.4,0.2,50.0,1000,4469,2649,999,50165.070312,0.019914
2,1000,0.4,0.2,50.0,1000,4361,2618,998,48373.289062,0.020631
3,1000,0.4,0.2,50.0,1000,4478,2676,997,49104.906250,0.020303
4,1000,0.4,0.2,50.0,1000,4175,2515,999,48527.410156,0.020586
5,1000,0.4,0.2,50.0,1000,4366,2612,999,49888.703125,0.020025
6,1000,0.4,0.2,50.0,1000,4119,2524,998,50461.753906,0.019777
7,1000,0.4,0.2,50.0,1000,4546,2682,999,50622.804688,0.019734
8,1000,0.4,0.2,50.0,1000,4262,2602,997,50427.332031,0.019771
9,1000,0.4,0.2,50.0,1000,4410,2648,997,49795.097656,0.020022
10,1000,0.4,0.2,50.0,1000,4351,2636,998,48917.589844,0.020402
```

SR -m 1000 - l 0.6 -c 0.2 - t 50 -w 10

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.6,0.2,50.0,1000,9540,3833,969,50195.593750,0.019304
2,1000,0.6,0.2,50.0,1000,8997,3511,889,50162.062500,0.017723
3,1000,0.6,0.2,50.0,1000,9209,3672,900,50689.300781,0.017755
4,1000,0.6,0.2,50.0,1000,9183,3760,964,50999.656250,0.018902
5,1000,0.6,0.2,50.0,1000,9346,3696,936,51411.960938,0.018206
6,1000,0.6,0.2,50.0,1000,9228,3703,966,51172.878906,0.018877
7,1000,0.6,0.2,50.0,1000,8936,3579,856,49094.800781,0.017436
8,1000,0.6,0.2,50.0,1000,9281,3751,927,48728.171875,0.019024
9,1000,0.6,0.2,50.0,1000,8926,3529,898,49780.167969,0.018039
10,1000,0.6,0.2,50.0,1000,9231,3741,904,49301.675781,0.018336
```

SR -m 1000 - l 0.8 -c 0.2 - t 50 -w 10

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.8,0.2,50.0,1000,8649,1742,215,51723.539062,0.004157
2,1000,0.8,0.2,50.0,1000,9040,1831,212,52728.136719,0.004021
3,1000,0.8,0.2,50.0,1000,8895,1803,223,50185.468750,0.004444
4,1000,0.8,0.2,50.0,1000,9671,2055,268,50429.980469,0.005314
5,1000,0.8,0.2,50.0,1000,9064,1820,241,49801.777344,0.004839
6,1000,0.8,0.2,50.0,1000,8790,1736,242,51732.582031,0.004678
7,1000,0.8,0.2,50.0,1000,9488,1827,242,50780.808594,0.004766
8,1000,0.8,0.2,50.0,1000,7799,1573,199,49410.949219,0.004027
9,1000,0.8,0.2,50.0,1000,9289,1856,264,50495.980469,0.005228
10,1000,0.8,0.2,50.0,1000,8827,1758,239,49834.175781,0.004796
```

SR -m 1000 - l 0.1 -c 0.2 - t 50 -w 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.1,0.2,50.0,1000,1909,1727,999,49915.039062,0.020014
2,1000,0.1,0.2,50.0,1000,1983,1801,999,50402.117188,0.019821
3,1000,0.1,0.2,50.0,1000,1970,1773,999,48734.062500,0.020499
4,1000,0.1,0.2,50.0,1000,1879,1690,999,50643.187500,0.019726
5,1000,0.1,0.2,50.0,1000,1893,1687,999,49831.906250,0.020047
6,1000,0.1,0.2,50.0,1000,1949,1770,999,48077.828125,0.020779
7,1000,0.1,0.2,50.0,1000,1942,1740,999,50148.218750,0.019921
8,1000,0.1,0.2,50.0,1000,1905,1729,999,50656.855469,0.019721
9,1000,0.1,0.2,50.0,1000,1949,1759,998,48403.234375,0.020618
10,1000,0.1,0.2,50.0,1000,1907,1720,999,49632.167969,0.020128
```

SR -m 1000 - l 0.2 -c 0.2 - t 50 -w 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.2,0.2,50.0,1000,2402,1934,999,48302.496094,0.020682
2,1000,0.2,0.2,50.0,1000,2419,1944,998,48692.656250,0.020496
3,1000,0.2,0.2,50.0,1000,2507,1982,999,50179.523438,0.019909
4,1000,0.2,0.2,50.0,1000,2459,1972,998,49503.296875,0.020160
5,1000,0.2,0.2,50.0,1000,2383,1926,999,49960.136719,0.019996
6,1000,0.2,0.2,50.0,1000,2511,2010,999,50748.718750,0.019685
7,1000,0.2,0.2,50.0,1000,2552,2040,999,50334.156250,0.019847
8,1000,0.2,0.2,50.0,1000,2434,1958,999,51246.703125,0.019494
9,1000,0.2,0.2,50.0,1000,2437,1922,999,50183.910156,0.019907
10,1000,0.2,0.2,50.0,1000,2416,1940,999,50426.410156,0.019811
```

SR -m 1000 - l 0.4 -c 0.2 - t 50 -w 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.4,0.2,50.0,1000,4448,2633,997,49990.042969,0.019944
2,1000,0.4,0.2,50.0,1000,4254,2579,999,48125.906250,0.020758
3,1000,0.4,0.2,50.0,1000,4512,2698,998,49044.582031,0.020349
4,1000,0.4,0.2,50.0,1000,4210,2543,999,49341.546875,0.020247
5,1000,0.4,0.2,50.0,1000,4353,2597,998,49710.722656,0.020076
6,1000,0.4,0.2,50.0,1000,4153,2523,999,50454.664062,0.019800
7,1000,0.4,0.2,50.0,1000,4500,2657,998,50838.515625,0.019631
8,1000,0.4,0.2,50.0,1000,4246,2611,999,50779.761719,0.019673
9,1000,0.4,0.2,50.0,1000,4474,2661,999,50427.570312,0.019811
10,1000,0.4,0.2,50.0,1000,4354,2638,998,49165.828125,0.020299
```

SR -m 1000 - l 0.6 -c 0.2 - t 50 -w 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.6,0.2,50.0,1000,9840,4006,997,50146.632812,0.019882
2,1000,0.6,0.2,50.0,1000,10139,3968,997,49867.957031,0.019993
3,1000,0.6,0.2,50.0,1000,10001,4056,997,49225.960938,0.020254
4,1000,0.6,0.2,50.0,1000,9557,3925,999,48738.441406,0.020497
5,1000,0.6,0.2,50.0,1000,10064,4044,996,49022.156250,0.020317
6,1000,0.6,0.2,50.0,1000,9591,3878,999,50565.417969,0.019757
7,1000,0.6,0.2,50.0,1000,9648,3811,996,48601.031250,0.020493
8,1000,0.6,0.2,50.0,1000,9480,3783,998,49817.945312,0.020033
9,1000,0.6,0.2,50.0,1000,9740,3852,999,49182.136719,0.020312
10,1000,0.6,0.2,50.0,1000,10013,3966,997,52432.292969,0.019015
```

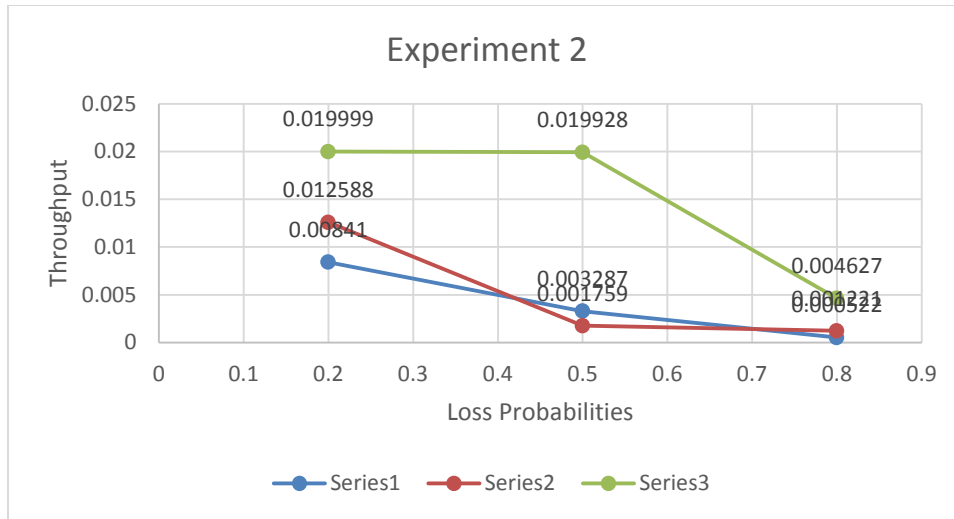
SR -m 1000 - l 0.8 -c 0.2 - t 50 -w 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.8,0.2,50.0,1000,34995,6857,654,49409.699219,0.013236
2,1000,0.8,0.2,50.0,1000,41017,7491,711,50613.167969,0.014048
3,1000,0.8,0.2,50.0,1000,39338,7755,776,50980.121094,0.015222
4,1000,0.8,0.2,50.0,1000,61238,8551,478,52483.855469,0.009108
5,1000,0.8,0.2,50.0,1000,36028,7043,749,50291.953125,0.014893
6,1000,0.8,0.2,50.0,1000,33626,6565,716,50643.132812,0.014138
7,1000,0.8,0.2,50.0,1000,39287,7649,660,49710.851562,0.013277
8,1000,0.8,0.2,50.0,1000,42083,7936,587,51193.476562,0.011466
9,1000,0.8,0.2,50.0,1000,37692,7381,657,49283.296875,0.013331
10,1000,0.8,0.2,50.0,1000,71120,8741,306,50609.929688,0.006046
```

Section 4.2.1 Experiment 2

Window size=10

Loss Probabilities	ABT	GBN (W=10)	SR (W=10)
0.2	0.0084105	0.012588	0.019999
0.5	0.003287	0.001759	0.019928
0.8	0.000522	0.001221	0.004627



ABT -m 1000 - l 0.2 -c 0.2 - t 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.2,0.2,50.0,1000,1030,838,434,51437.429688,0.008437
2,1000,0.2,0.2,50.0,1000,1000,792,406,49562.210938,0.008192
3,1000,0.2,0.2,50.0,1000,979,802,420,48017.746094,0.008747
4,1000,0.2,0.2,50.0,1000,994,788,413,49201.925781,0.008394
5,1000,0.2,0.2,50.0,1000,1000,822,449,49573.515625,0.009057
6,1000,0.2,0.2,50.0,1000,1019,814,421,51103.289062,0.008238
7,1000,0.2,0.2,50.0,1000,1006,802,409,49558.328125,0.008253
8,1000,0.2,0.2,50.0,1000,980,791,411,48186.667969,0.008529
9,1000,0.2,0.2,50.0,1000,1028,810,414,51408.859375,0.008053
10,1000,0.2,0.2,50.0,1000,1029,800,418,50949.707031,0.008204
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.5,0.2,50.0,1000,1043,541,169,51372.375000,0.003290
2,1000,0.5,0.2,50.0,1000,1024,520,158,50644.667969,0.003120
3,1000,0.5,0.2,50.0,1000,1010,496,165,50127.703125,0.003292
4,1000,0.5,0.2,50.0,1000,981,512,172,48385.460938,0.003555
5,1000,0.5,0.2,50.0,1000,971,503,179,48693.894531,0.003676
6,1000,0.5,0.2,50.0,1000,1020,502,156,50924.507812,0.003063
7,1000,0.5,0.2,50.0,1000,1019,498,148,50009.714844,0.002959
8,1000,0.5,0.2,50.0,1000,1030,529,179,51358.933594,0.003485
9,1000,0.5,0.2,50.0,1000,988,495,153,48697.121094,0.003142
10,1000,0.5,0.2,50.0,1000,1010,517,164,49817.074219,0.003292
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.8,0.2,50.0,1000,1002,202,24,50140.859375,0.000479
2,1000,0.8,0.2,50.0,1000,992,209,30,49516.281250,0.000606
3,1000,0.8,0.2,50.0,1000,1022,213,20,51153.851562,0.000391
4,1000,0.8,0.2,50.0,1000,1020,188,19,50967.937500,0.000373
5,1000,0.8,0.2,50.0,1000,1000,224,31,50206.621094,0.000617
6,1000,0.8,0.2,50.0,1000,1026,211,31,51263.687500,0.000605
7,1000,0.8,0.2,50.0,1000,989,200,28,49342.820312,0.000567
8,1000,0.8,0.2,50.0,1000,1011,207,33,50657.464844,0.000651
9,1000,0.8,0.2,50.0,1000,978,180,26,48743.113281,0.000533
10,1000,0.8,0.2,50.0,1000,1007,186,20,50533.351562,0.000396
```

GBN -m 1000 - l 0.2 -c 0.2 - t 50 -w 10

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.2,0.2,50.0,1000,89977,8827,45,49095.589844,0.000917
2,1000,0.2,0.2,50.0,1000,2781,2202,999,51186.710938,0.019517
3,1000,0.2,0.2,50.0,1000,57797,5998,493,49910.187500,0.009878
4,1000,0.2,0.2,50.0,1000,80464,7130,325,50838.101562,0.006393
5,1000,0.2,0.2,50.0,1000,49524,6286,414,50446.609375,0.008207
6,1000,0.2,0.2,50.0,1000,2558,2075,999,50236.941406,0.019886
7,1000,0.2,0.2,50.0,1000,32468,4278,700,49772.808594,0.014064
8,1000,0.2,0.2,50.0,1000,10097,2939,941,50242.949219,0.018729
9,1000,0.2,0.2,50.0,1000,2768,2181,999,48796.722656,0.020473
10,1000,0.2,0.2,50.0,1000,65533,6481,392,50162.347656,0.007815
```

GBN -m 1000 - l 0.5 -c 0.2 - t 50 -w 10

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.5,0.2,50.0,1000,19390,8849,0,48931.167969,0.000000
2,1000,0.5,0.2,50.0,1000,108649,8655,91,49419.000000,0.001841
3,1000,0.5,0.2,50.0,1000,114167,8918,66,49777.449219,0.001326
4,1000,0.5,0.2,50.0,1000,19620,8892,0,49282.167969,0.000000
5,1000,0.5,0.2,50.0,1000,78643,7166,308,49049.472656,0.006279
6,1000,0.5,0.2,50.0,1000,104876,8865,74,50171.945312,0.001475
7,1000,0.5,0.2,50.0,1000,99372,8745,102,49516.003906,0.002060
8,1000,0.5,0.2,50.0,1000,100094,8542,169,51048.796875,0.003311
9,1000,0.5,0.2,50.0,1000,104846,8855,64,49458.878906,0.001294
10,1000,0.5,0.2,50.0,1000,20171,9114,0,50698.914062,0.000000
```

GBN -m 1000 - l 0.8 -c 0.2 - t 50 -w 10

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.8,0.2,50.0,1000,19819,4031,0,49926.187500,0.000000
2,1000,0.8,0.2,50.0,1000,137535,9128,53,50661.289062,0.001046
3,1000,0.8,0.2,50.0,1000,139540,9188,61,50750.945312,0.001202
4,1000,0.8,0.2,50.0,1000,126985,8894,63,49496.312500,0.001273
5,1000,0.8,0.2,50.0,1000,125839,8766,60,49027.609375,0.001224
6,1000,0.8,0.2,50.0,1000,122130,9013,75,50146.503906,0.001496
7,1000,0.8,0.2,50.0,1000,132066,9243,88,50646.812500,0.001738
8,1000,0.8,0.2,50.0,1000,135394,9109,78,50482.046875,0.001545
9,1000,0.8,0.2,50.0,1000,111087,8721,78,48869.746094,0.001596
10,1000,0.8,0.2,50.0,1000,131381,9108,55,50655.996094,0.001086
```

SR -m 1000 - l 0.2 -c 0.2 - t 50 -w 10

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.2,0.2,50.0,1000,2402,1934,999,48302.496094,0.020682
2,1000,0.2,0.2,50.0,1000,2419,1944,998,48692.656250,0.020496
3,1000,0.2,0.2,50.0,1000,2507,1982,999,50179.523438,0.019909
4,1000,0.2,0.2,50.0,1000,2459,1972,998,49503.296875,0.020160
5,1000,0.2,0.2,50.0,1000,2383,1926,999,49960.136719,0.019996
6,1000,0.2,0.2,50.0,1000,2511,2010,999,50748.718750,0.019685
7,1000,0.2,0.2,50.0,1000,2552,2040,999,50334.156250,0.019847
8,1000,0.2,0.2,50.0,1000,2434,1958,999,51246.703125,0.019494
9,1000,0.2,0.2,50.0,1000,2437,1922,999,50183.910156,0.019907
10,1000,0.2,0.2,50.0,1000,2416,1940,999,50426.410156,0.019811
```

SR -m 1000 - l 0.5 -c 0.2 - t 50 -w 10

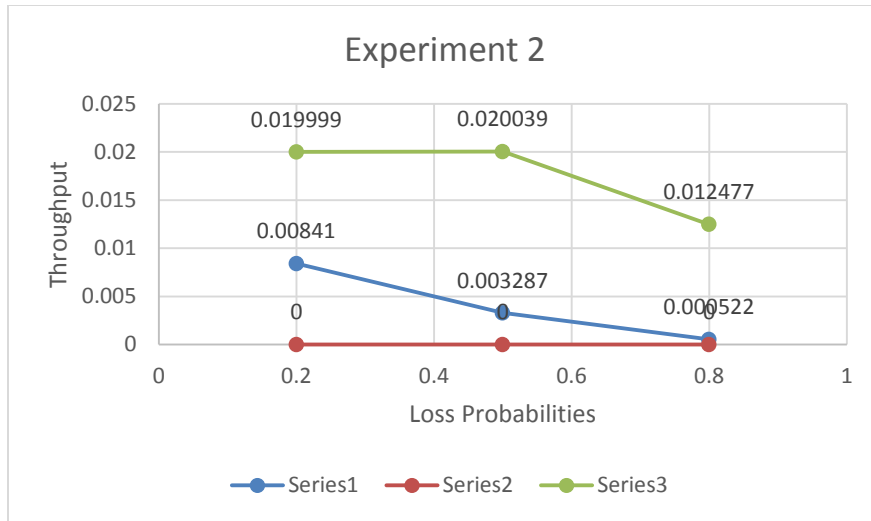
```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.5,0.2,50.0,1000,6215,3140,999,49237.859375,0.020289
2,1000,0.5,0.2,50.0,1000,6278,3135,999,50170.863281,0.019912
3,1000,0.5,0.2,50.0,1000,6677,3285,999,51625.523438,0.019351
4,1000,0.5,0.2,50.0,1000,5981,3043,999,50491.718750,0.019785
5,1000,0.5,0.2,50.0,1000,6371,3132,999,50428.609375,0.019810
6,1000,0.5,0.2,50.0,1000,6257,3187,999,51337.566406,0.019459
7,1000,0.5,0.2,50.0,1000,6483,3216,999,50024.882812,0.019970
8,1000,0.5,0.2,50.0,1000,6207,3074,996,50566.488281,0.019697
9,1000,0.5,0.2,50.0,1000,6285,3122,998,47985.968750,0.020798
10,1000,0.5,0.2,50.0,1000,6601,3338,996,49276.570312,0.020212
```

SR -m 1000 - l 0.8 -c 0.2 - t 50 -w 10

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.8,0.2,50.0,1000,8649,1742,215,51723.539062,0.004157
2,1000,0.8,0.2,50.0,1000,9040,1831,212,52728.136719,0.004021
3,1000,0.8,0.2,50.0,1000,8895,1803,223,50185.468750,0.004444
4,1000,0.8,0.2,50.0,1000,9671,2055,268,50429.980469,0.005314
5,1000,0.8,0.2,50.0,1000,9064,1820,241,49801.777344,0.004839
6,1000,0.8,0.2,50.0,1000,8790,1736,242,51732.582031,0.004678
7,1000,0.8,0.2,50.0,1000,9488,1827,242,50780.808594,0.004766
8,1000,0.8,0.2,50.0,1000,7799,1573,199,49410.949219,0.004027
9,1000,0.8,0.2,50.0,1000,9289,1856,264,50495.980469,0.005228
10,1000,0.8,0.2,50.0,1000,8827,1758,239,49834.175781,0.004796
```

Window size=50

Loss Probabilities	ABT	GBN (W=50)	SR (W=50)
0.2	0.0084105	0	0.019999
0.5	0.003287	0	0.020039
0.8	0.000522	0	0.012477



ABT -m 1000 - l 0.2 -c 0.2 - t 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.2,0.2,50.0,1000,1030,838,434,51437.429688,0.008437
2,1000,0.2,0.2,50.0,1000,1000,792,406,49562.210938,0.008192
3,1000,0.2,0.2,50.0,1000,979,802,420,48017.746094,0.008747
4,1000,0.2,0.2,50.0,1000,994,788,413,49201.925781,0.008394
5,1000,0.2,0.2,50.0,1000,1000,822,449,49573.515625,0.009057
6,1000,0.2,0.2,50.0,1000,1019,814,421,51103.289062,0.008238
7,1000,0.2,0.2,50.0,1000,1006,802,409,49558.328125,0.008253
8,1000,0.2,0.2,50.0,1000,980,791,411,48186.667969,0.008529
9,1000,0.2,0.2,50.0,1000,1028,810,414,51408.859375,0.008053
10,1000,0.2,0.2,50.0,1000,1029,800,418,50949.707031,0.008204
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.5,0.2,50.0,1000,1043,541,169,51372.375000,0.003290
2,1000,0.5,0.2,50.0,1000,1024,520,158,50644.667969,0.003120
3,1000,0.5,0.2,50.0,1000,1010,496,165,50127.703125,0.003292
4,1000,0.5,0.2,50.0,1000,981,512,172,48385.460938,0.003555
5,1000,0.5,0.2,50.0,1000,971,503,179,48693.894531,0.003676
6,1000,0.5,0.2,50.0,1000,1020,502,156,50924.507812,0.003063
7,1000,0.5,0.2,50.0,1000,1019,498,148,50009.714844,0.002959
8,1000,0.5,0.2,50.0,1000,1030,529,179,51358.933594,0.003485
9,1000,0.5,0.2,50.0,1000,988,495,153,48697.121094,0.003142
10,1000,0.5,0.2,50.0,1000,1010,517,164,49817.074219,0.003292
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.8,0.2,50.0,1000,1002,202,24,50140.859375,0.000479
2,1000,0.8,0.2,50.0,1000,992,209,30,49516.281250,0.000606
3,1000,0.8,0.2,50.0,1000,1022,213,20,51153.851562,0.000391
4,1000,0.8,0.2,50.0,1000,1020,188,19,50967.937500,0.000373
5,1000,0.8,0.2,50.0,1000,1000,224,31,50206.621094,0.000617
6,1000,0.8,0.2,50.0,1000,1026,211,31,51263.687500,0.000605
7,1000,0.8,0.2,50.0,1000,989,200,28,49342.820312,0.000567
8,1000,0.8,0.2,50.0,1000,1011,207,33,50657.464844,0.000651
9,1000,0.8,0.2,50.0,1000,978,180,26,48743.113281,0.000533
10,1000,0.8,0.2,50.0,1000,1007,186,20,50533.351562,0.000396
```

SR -m 1000 - l 0.2 -c 0.2 - t 50 -w 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.2,0.2,50.0,1000,2402,1934,999,48302.496094,0.020682
2,1000,0.2,0.2,50.0,1000,2419,1944,998,48692.656250,0.020496
3,1000,0.2,0.2,50.0,1000,2507,1982,999,50179.523438,0.019909
4,1000,0.2,0.2,50.0,1000,2459,1972,998,49503.296875,0.020160
5,1000,0.2,0.2,50.0,1000,2383,1926,999,49960.136719,0.019996
6,1000,0.2,0.2,50.0,1000,2511,2010,999,50748.718750,0.019685
7,1000,0.2,0.2,50.0,1000,2552,2040,999,50334.156250,0.019847
8,1000,0.2,0.2,50.0,1000,2434,1958,999,51246.703125,0.019494
9,1000,0.2,0.2,50.0,1000,2437,1922,999,50183.910156,0.019907
10,1000,0.2,0.2,50.0,1000,2416,1940,999,50426.410156,0.019811
```

SR -m 1000 - l 0.5 -c 0.2 - t 50 -w 50

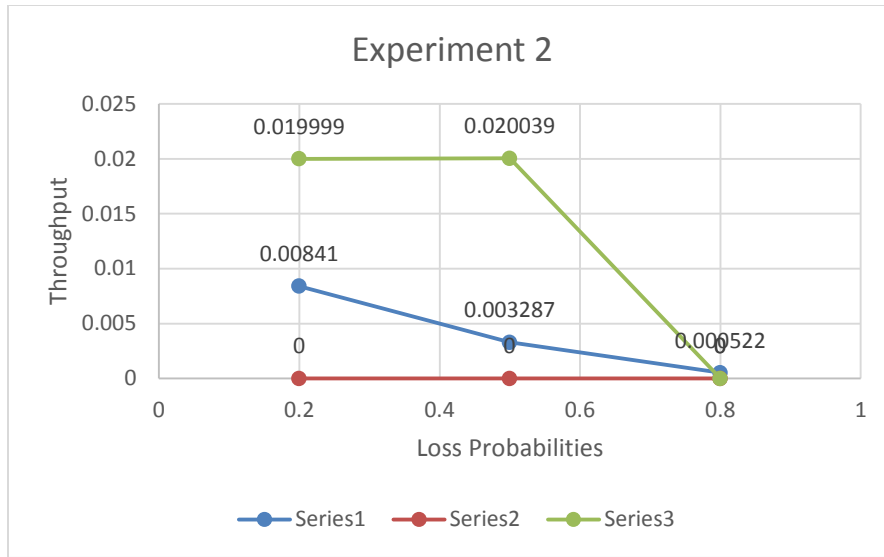
```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.5,0.2,50.0,1000,6220,3127,998,49834.914062,0.020026
2,1000,0.5,0.2,50.0,1000,6474,3191,998,49547.609375,0.020142
3,1000,0.5,0.2,50.0,1000,6397,3183,997,49039.214844,0.020331
4,1000,0.5,0.2,50.0,1000,6033,3065,998,48743.441406,0.020475
5,1000,0.5,0.2,50.0,1000,6407,3190,998,48621.488281,0.020526
6,1000,0.5,0.2,50.0,1000,6168,3108,999,52021.253906,0.019204
7,1000,0.5,0.2,50.0,1000,6482,3181,996,50319.910156,0.019793
8,1000,0.5,0.2,50.0,1000,6172,3055,999,49947.105469,0.020001
9,1000,0.5,0.2,50.0,1000,6391,3167,999,50407.988281,0.019818
10,1000,0.5,0.2,50.0,1000,6511,3297,999,49775.031250,0.020070
```

SR -m 1000 - l 0.8 -c 0.2 - t 50 -w 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.8,0.2,50.0,1000,34995,6857,654,49409.699219,0.013236
2,1000,0.8,0.2,50.0,1000,41017,7491,711,50613.167969,0.014048
3,1000,0.8,0.2,50.0,1000,39338,7755,776,50980.121094,0.015222
4,1000,0.8,0.2,50.0,1000,61238,8551,478,52483.855469,0.009108
5,1000,0.8,0.2,50.0,1000,36028,7043,749,50291.953125,0.014893
6,1000,0.8,0.2,50.0,1000,33626,6565,716,50643.132812,0.014138
7,1000,0.8,0.2,50.0,1000,39287,7649,660,49710.851562,0.013277
8,1000,0.8,0.2,50.0,1000,42083,7936,587,51193.476562,0.011466
9,1000,0.8,0.2,50.0,1000,37692,7381,657,49283.296875,0.013331
10,1000,0.8,0.2,50.0,1000,71120,8741,306,50609.929688,0.006046
```

Window size=100

Loss Probabilities	ABT	GBN (W=100)	SR (W=100)
0.2	0.0084105	0	0.019999
0.5	0.003287	0	0.020039
0.8	0.000522	0	0



ABT -m 1000 - l 0.2 -c 0.2 - t 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.2,0.2,50.0,1000,1030,838,434,51437.429688,0.008437
2,1000,0.2,0.2,50.0,1000,1000,792,406,49562.210938,0.008192
3,1000,0.2,0.2,50.0,1000,979,802,420,48017.746094,0.008747
4,1000,0.2,0.2,50.0,1000,994,788,413,49201.925781,0.008394
5,1000,0.2,0.2,50.0,1000,1000,822,449,49573.515625,0.009057
6,1000,0.2,0.2,50.0,1000,1019,814,421,51103.289062,0.008238
7,1000,0.2,0.2,50.0,1000,1006,802,409,49558.328125,0.008253
8,1000,0.2,0.2,50.0,1000,980,791,411,48186.667969,0.008529
9,1000,0.2,0.2,50.0,1000,1028,810,414,51408.859375,0.008053
10,1000,0.2,0.2,50.0,1000,1029,800,418,50949.707031,0.008204
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.5,0.2,50.0,1000,1043,541,169,51372.375000,0.003290
2,1000,0.5,0.2,50.0,1000,1024,520,158,50644.667969,0.003120
3,1000,0.5,0.2,50.0,1000,1010,496,165,50127.703125,0.003292
4,1000,0.5,0.2,50.0,1000,981,512,172,48385.460938,0.003555
5,1000,0.5,0.2,50.0,1000,971,503,179,48693.894531,0.003676
6,1000,0.5,0.2,50.0,1000,1020,502,156,50924.507812,0.003063
7,1000,0.5,0.2,50.0,1000,1019,498,148,50009.714844,0.002959
8,1000,0.5,0.2,50.0,1000,1030,529,179,51358.933594,0.003485
9,1000,0.5,0.2,50.0,1000,988,495,153,48697.121094,0.003142
10,1000,0.5,0.2,50.0,1000,1010,517,164,49817.074219,0.003292
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.8,0.2,50.0,1000,1002,202,24,50140.859375,0.000479
2,1000,0.8,0.2,50.0,1000,992,209,30,49516.281250,0.000606
3,1000,0.8,0.2,50.0,1000,1022,213,20,51153.851562,0.000391
4,1000,0.8,0.2,50.0,1000,1020,188,19,50967.937500,0.000373
5,1000,0.8,0.2,50.0,1000,1000,224,31,50206.621094,0.000617
6,1000,0.8,0.2,50.0,1000,1026,211,31,51263.687500,0.000605
7,1000,0.8,0.2,50.0,1000,989,200,28,49342.820312,0.000567
8,1000,0.8,0.2,50.0,1000,1011,207,33,50657.464844,0.000651
9,1000,0.8,0.2,50.0,1000,978,180,26,48743.113281,0.000533
10,1000,0.8,0.2,50.0,1000,1007,186,20,50533.351562,0.000396
```


SR -m 1000 - l 0.2 -c 0.2 - t 50 -w 100

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.2,0.2,50.0,1000,2402,1934,999,48302.496094,0.020682
2,1000,0.2,0.2,50.0,1000,2419,1944,998,48692.656250,0.020496
3,1000,0.2,0.2,50.0,1000,2507,1982,999,50179.523438,0.019909
4,1000,0.2,0.2,50.0,1000,2459,1972,998,49503.296875,0.020160
5,1000,0.2,0.2,50.0,1000,2383,1926,999,49960.136719,0.019996
6,1000,0.2,0.2,50.0,1000,2511,2010,999,50748.718750,0.019685
7,1000,0.2,0.2,50.0,1000,2552,2040,999,50334.156250,0.019847
8,1000,0.2,0.2,50.0,1000,2434,1958,999,51246.703125,0.019494
9,1000,0.2,0.2,50.0,1000,2437,1922,999,50183.910156,0.019907
10,1000,0.2,0.2,50.0,1000,2416,1940,999,50426.410156,0.019811
```

SR -m 1000 - l 0.5 -c 0.2 - t 50 -w 100

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.5,0.2,50.0,1000,6220,3127,998,49834.914062,0.020026
2,1000,0.5,0.2,50.0,1000,6474,3191,998,49547.609375,0.020142
3,1000,0.5,0.2,50.0,1000,6397,3183,997,49039.214844,0.020331
4,1000,0.5,0.2,50.0,1000,6033,3065,998,48743.441406,0.020475
5,1000,0.5,0.2,50.0,1000,6407,3190,998,48621.488281,0.020526
6,1000,0.5,0.2,50.0,1000,6168,3108,999,52021.253906,0.019204
7,1000,0.5,0.2,50.0,1000,6482,3181,996,50319.910156,0.019793
8,1000,0.5,0.2,50.0,1000,6172,3055,999,49947.105469,0.020001
9,1000,0.5,0.2,50.0,1000,6391,3167,999,50407.988281,0.019818
10,1000,0.5,0.2,50.0,1000,6511,3297,999,49775.031250,0.020070
```

Window size=200

Loss Probabilities	ABT	GBN (W=200)	SR (W=200)
0.2	0.0084105	0	0.019999
0.5	0.003287	0	0.020039
0.8	0.000522	0	0.019904



ABT -m 1000 - l 0.2 -c 0.2 - t 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.2,0.2,50.0,1000,1030,838,434,51437.429688,0.008437
2,1000,0.2,0.2,50.0,1000,1000,792,406,49562.210938,0.008192
3,1000,0.2,0.2,50.0,1000,979,802,420,48017.746094,0.008747
4,1000,0.2,0.2,50.0,1000,994,788,413,49201.925781,0.008394
5,1000,0.2,0.2,50.0,1000,1000,822,449,49573.515625,0.009057
6,1000,0.2,0.2,50.0,1000,1019,814,421,51103.289062,0.008238
7,1000,0.2,0.2,50.0,1000,1006,802,409,49558.328125,0.008253
8,1000,0.2,0.2,50.0,1000,980,791,411,48186.667969,0.008529
9,1000,0.2,0.2,50.0,1000,1028,810,414,51408.859375,0.008053
10,1000,0.2,0.2,50.0,1000,1029,800,418,50949.707031,0.008204
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.5,0.2,50.0,1000,1043,541,169,51372.375000,0.003290
2,1000,0.5,0.2,50.0,1000,1024,520,158,50644.667969,0.003120
3,1000,0.5,0.2,50.0,1000,1010,496,165,50127.703125,0.003292
4,1000,0.5,0.2,50.0,1000,981,512,172,48385.460938,0.003555
5,1000,0.5,0.2,50.0,1000,971,503,179,48693.894531,0.003676
6,1000,0.5,0.2,50.0,1000,1020,502,156,50924.507812,0.003063
7,1000,0.5,0.2,50.0,1000,1019,498,148,50009.714844,0.002959
8,1000,0.5,0.2,50.0,1000,1030,529,179,51358.933594,0.003485
9,1000,0.5,0.2,50.0,1000,988,495,153,48697.121094,0.003142
10,1000,0.5,0.2,50.0,1000,1010,517,164,49817.074219,0.003292
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.8,0.2,50.0,1000,1002,202,24,50140.859375,0.000479
2,1000,0.8,0.2,50.0,1000,992,209,30,49516.281250,0.000606
3,1000,0.8,0.2,50.0,1000,1022,213,20,51153.851562,0.000391
4,1000,0.8,0.2,50.0,1000,1020,188,19,50967.937500,0.000373
5,1000,0.8,0.2,50.0,1000,1000,224,31,50206.621094,0.000617
6,1000,0.8,0.2,50.0,1000,1026,211,31,51263.687500,0.000605
7,1000,0.8,0.2,50.0,1000,989,200,28,49342.820312,0.000567
8,1000,0.8,0.2,50.0,1000,1011,207,33,50657.464844,0.000651
9,1000,0.8,0.2,50.0,1000,978,180,26,48743.113281,0.000533
10,1000,0.8,0.2,50.0,1000,1007,186,20,50533.351562,0.000396
```

SR -m 1000 - l 0.2 -c 0.2 - t 50 -w 200

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.2,0.2,50.0,1000,2402,1934,999,48302.496094,0.020682
2,1000,0.2,0.2,50.0,1000,2419,1944,998,48692.656250,0.020496
3,1000,0.2,0.2,50.0,1000,2507,1982,999,50179.523438,0.019909
4,1000,0.2,0.2,50.0,1000,2459,1972,998,49503.296875,0.020160
5,1000,0.2,0.2,50.0,1000,2383,1926,999,49960.136719,0.019996
6,1000,0.2,0.2,50.0,1000,2511,2010,999,50748.718750,0.019685
7,1000,0.2,0.2,50.0,1000,2552,2040,999,50334.156250,0.019847
8,1000,0.2,0.2,50.0,1000,2434,1958,999,51246.703125,0.019494
9,1000,0.2,0.2,50.0,1000,2437,1922,999,50183.910156,0.019907
10,1000,0.2,0.2,50.0,1000,2416,1940,999,50426.410156,0.019811
```

SR -m 1000 - l 0.5 -c 0.2 - t 50 -w 200

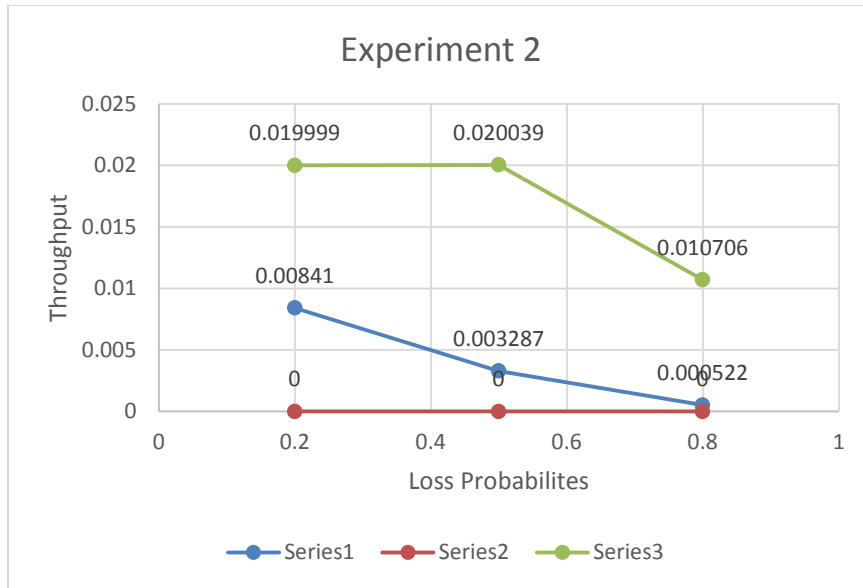
```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.5,0.2,50.0,1000,6220,3127,998,49834.914062,0.020026
2,1000,0.5,0.2,50.0,1000,6474,3191,998,49547.609375,0.020142
3,1000,0.5,0.2,50.0,1000,6397,3183,997,49039.214844,0.020331
4,1000,0.5,0.2,50.0,1000,6033,3065,998,48743.441406,0.020475
5,1000,0.5,0.2,50.0,1000,6407,3190,998,48621.488281,0.020526
6,1000,0.5,0.2,50.0,1000,6168,3108,999,52021.253906,0.019204
7,1000,0.5,0.2,50.0,1000,6482,3181,996,50319.910156,0.019793
8,1000,0.5,0.2,50.0,1000,6172,3055,999,49947.105469,0.020001
9,1000,0.5,0.2,50.0,1000,6391,3167,999,50407.988281,0.019818
10,1000,0.5,0.2,50.0,1000,6511,3297,999,49775.031250,0.020070
```

SR -m 1000 - l 0.8 -c 0.2 - t 50 -w 200

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.8,0.2,50.0,1000,234412,9032,384,51013.933594,0.007527
2,1000,0.8,0.2,50.0,1000,208929,8792,439,50743.171875,0.008651
3,1000,0.8,0.2,50.0,1000,145718,8601,600,49721.351562,0.012067
4,1000,0.8,0.2,50.0,1000,85892,7667,770,50999.953125,0.015098
5,1000,0.8,0.2,50.0,1000,158350,8500,558,49948.539062,0.011171
6,1000,0.8,0.2,50.0,1000,160470,8247,605,49315.718750,0.012268
7,1000,0.8,0.2,50.0,1000,180676,8430,480,49220.859375,0.009752
8,1000,0.8,0.2,50.0,1000,173741,8757,619,50591.191406,0.012235
9,1000,0.8,0.2,50.0,1000,175918,8352,550,49032.054688,0.011217
10,1000,0.8,0.2,50.0,1000,174256,8440,548,48536.953125,0.011290
```

Window size=500

Loss Probabilities	ABT	GBN (W=500)	SR (W=500)
0.2	0.0084105	0	0.019999
0.5	0.003287	0	0.020039
0.8	0.000522	0	0.010706



ABT -m 1000 - l 0.2 -c 0.2 - t 50

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.2,0.2,50.0,1000,1030,838,434,51437.429688,0.008437
2,1000,0.2,0.2,50.0,1000,1000,792,406,49562.210938,0.008192
3,1000,0.2,0.2,50.0,1000,979,802,420,48017.746094,0.008747
4,1000,0.2,0.2,50.0,1000,994,788,413,49201.925781,0.008394
5,1000,0.2,0.2,50.0,1000,1000,822,449,49573.515625,0.009057
6,1000,0.2,0.2,50.0,1000,1019,814,421,51103.289062,0.008238
7,1000,0.2,0.2,50.0,1000,1006,802,409,49558.328125,0.008253
8,1000,0.2,0.2,50.0,1000,980,791,411,48186.667969,0.008529
9,1000,0.2,0.2,50.0,1000,1028,810,414,51408.859375,0.008053
10,1000,0.2,0.2,50.0,1000,1029,800,418,50949.707031,0.008204
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.5,0.2,50.0,1000,1043,541,169,51372.375000,0.003290
2,1000,0.5,0.2,50.0,1000,1024,520,158,50644.667969,0.003120
3,1000,0.5,0.2,50.0,1000,1010,496,165,50127.703125,0.003292
4,1000,0.5,0.2,50.0,1000,981,512,172,48385.460938,0.003555
5,1000,0.5,0.2,50.0,1000,971,503,179,48693.894531,0.003676
6,1000,0.5,0.2,50.0,1000,1020,502,156,50924.507812,0.003063
7,1000,0.5,0.2,50.0,1000,1019,498,148,50009.714844,0.002959
8,1000,0.5,0.2,50.0,1000,1030,529,179,51358.933594,0.003485
9,1000,0.5,0.2,50.0,1000,988,495,153,48697.121094,0.003142
10,1000,0.5,0.2,50.0,1000,1010,517,164,49817.074219,0.003292
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.8,0.2,50.0,1000,1002,202,24,50140.859375,0.000479
2,1000,0.8,0.2,50.0,1000,992,209,30,49516.281250,0.000606
3,1000,0.8,0.2,50.0,1000,1022,213,20,51153.851562,0.000391
4,1000,0.8,0.2,50.0,1000,1020,188,19,50967.937500,0.000373
5,1000,0.8,0.2,50.0,1000,1000,224,31,50206.621094,0.000617
6,1000,0.8,0.2,50.0,1000,1026,111,31,51263.687500,0.000605
7,1000,0.8,0.2,50.0,1000,989,200,28,49342.820312,0.000567
8,1000,0.8,0.2,50.0,1000,1011,207,33,50657.464844,0.000651
9,1000,0.8,0.2,50.0,1000,978,180,26,48743.113281,0.000533
10,1000,0.8,0.2,50.0,1000,1007,186,20,50533.351562,0.000396
```

SR -m 1000 - l 0.2 -c 0.2 - t 50 -w 500

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.2,0.2,50.0,1000,2402,1934,999,48302.496094,0.020682
2,1000,0.2,0.2,50.0,1000,2419,1944,998,48692.656250,0.020496
3,1000,0.2,0.2,50.0,1000,2507,1982,999,50179.523438,0.019909
4,1000,0.2,0.2,50.0,1000,2459,1972,998,49503.296875,0.020160
5,1000,0.2,0.2,50.0,1000,2383,1926,999,49960.136719,0.019996
6,1000,0.2,0.2,50.0,1000,2511,2010,999,50748.718750,0.019685
7,1000,0.2,0.2,50.0,1000,2552,2040,999,50334.156250,0.019847
8,1000,0.2,0.2,50.0,1000,2434,1958,999,51246.703125,0.019494
9,1000,0.2,0.2,50.0,1000,2437,1922,999,50183.910156,0.019907
10,1000,0.2,0.2,50.0,1000,2416,1940,999,50426.410156,0.019811
```

SR -m 1000 - l 0.5 -c 0.2 - t 50 -w 500

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.5,0.2,50.0,1000,6220,3127,998,49834.914062,0.020026
2,1000,0.5,0.2,50.0,1000,6474,3191,998,49547.609375,0.020142
3,1000,0.5,0.2,50.0,1000,6397,3183,997,49039.214844,0.020331
4,1000,0.5,0.2,50.0,1000,6033,3065,998,48743.441406,0.020475
5,1000,0.5,0.2,50.0,1000,6407,3190,998,48621.488281,0.020526
6,1000,0.5,0.2,50.0,1000,6168,3108,999,52021.253906,0.019204
7,1000,0.5,0.2,50.0,1000,6482,3181,996,50319.910156,0.019793
8,1000,0.5,0.2,50.0,1000,6172,3055,999,49947.105469,0.020001
9,1000,0.5,0.2,50.0,1000,6391,3167,999,50407.988281,0.019818
10,1000,0.5,0.2,50.0,1000,6511,3297,999,49775.031250,0.020070
```

SR -m 1000 - l 0.8 -c 0.2 - t 50 -w 500

```
Run,Messages,Loss,Corruption,Time_bw_messages,Application_A,Transport_A,Transport_B,Application_B,Total_time,Throughput
1,1000,0.8,0.2,50.0,1000,469500,8930,382,50447.445312,0.007572
2,1000,0.8,0.2,50.0,1000,381499,8594,439,49687.164062,0.008835
3,1000,0.8,0.2,50.0,1000,258717,8606,600,49747.136719,0.012061
4,1000,0.8,0.2,50.0,1000,114389,7626,770,50734.910156,0.015177
5,1000,0.8,0.2,50.0,1000,359348,8522,495,50088.421875,0.009883
```