Project # 2: Go- Back- N
Nikhil Khatu

File name: rfc6469.txt
File size: 1.145030 Mbytes

Ping:

ngkhatu@networkbeansi7:~/Desktop/GBNv1.0.0$ ping 152.7.99.187
PING 152.7.99.187 (152.7.99.187) 56(84) bytes of data.
64 bytes from 152.7.99.187: icmp_req=1 ttl=55 time=25.2 ms
64 bytes from 152.7.99.187: icmp_req=2 ttl=55 time=25.0 ms
64 bytes from 152.7.99.187: icmp_req=3 ttl=55 time=26.3 ms
64 bytes from 152.7.99.187: icmp_req=4 ttl=55 time=22.5 ms
64 bytes from 152.7.99.187: icmp_req=5 ttl=55 time=22.2 ms
^C
--- 152.7.99.187 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4005ms
rtt min/avg/max/mdev = 22.261/24.304/26.367/1.612 ms
ngkhatu@networkbeansi7:~/Desktop/GBNv1.0.0$

Traceroute:

ngkhatu@networkbeansi7:~/Desktop/GBNv1.0.0$ traceroute 152.7.99.187
traceroute to 152.7.99.187 (152.7.99.187), 30 hops max, 60 byte packets
1 cpe-174-097-168-001.nc.res.rr.com (174.97.168.1) 24.465 ms 24.468 ms 24.508 ms
2 66.26.46.49 (66.26.46.49) 12.259 ms 19.353 ms 19.372 ms
3 ae19.chrlncpop-rtr1.southeast.rr.com (24.93.64.2) 24.564 ms 24.660 ms 24.597 ms
4 ten1-3.chrlncsa-p-rtr01.southeast.rr.com (24.93.73.57) 24.692 ms 24.734 ms 24.775 ms
5 por100.twcc.rlghnc-a-c2701.nc.rr.com (24.27.255.253) 33.037 ms 36.102 ms 36.460 ms
6 rrcs-24-172-64-46.midsouth.biz.rr.com (24.172.64.46) 25.602 ms 19.531 ms 18.001 ms
7 ncsu-gw-2-to-chlt7600-gw.ncren.net (128.109.248.62) 47.914 ms 23.124 ms 23.114 ms
8 itcore-x-ncsugw2.ncstate.net (152.1.6.249) 22.591 ms 29.508 ms 29.526 ms
9 vl2907-dc2-6509-1.ncstate.net (152.1.6.214) 29.592 ms 29.606 ms 29.675 ms
10 vclv99-187.hpc.ncsu.edu (152.7.99.187) 29.871 ms 30.101 ms 30.125 ms

Client IP: 152.7.99.187
Client port: 34101
Server IP: 174.97.174.118
Server port: 23
RTT/ timeout value: 0.025 → 25 msecs

Task # 1

MSS = 500bytes
p = 0.05

Delay of file transfer by window size

N	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Average
1	69.31	70.89	70.77	70.32	70.13	70.284
2	39.87	39.36	39.69	39.54	39.52	39.596
4	23.35	24.17	25.08	25.02	22.59	24.042
8	13.01	13.48	14.23	13.67	13.38	13.554
16	15.82	13.80	15.43	15.17	16.79	15.402
32	23.27	26.09	19.52	25.79	28.99	24.732
64	38.81	37.48	37.59	43.78	39.33	39.398
128	59.46	67.30	57.80	62.38	67.28	62.844
256	101.35	101.11	99.32	107.11	105.02	102.782
512	157.57	168.56	184.86	198.55	193.46	180.6
1024	281.30	312.45	314.07	272.55	290.30	294.134

Plot of N vs delay

Task # 2

N = 64

p = 0.05

Delay of file transfer by MSS

MSS (in bytes)	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Average
100	180.71	172.37	172.51	182.30	188.56	179.29
200	97.56	84.65	98.07	89.83	91.72	92.366
300	58.98	66.94	67.53	58.89	63.61	63.19
400	49.97	47.71	43.90	50.89	52.25	48.944
500	40.91	40.50	39.90	39.29	38.31	39.782
600	31.14	31.54	29.99	34.47	31.41	31.71
700	26.78	30.68	25.48	32.64	28.97	28.91
800	23.78	25.73	25.72	21.61	20.84	23.536
900	18.88	22.29	18.64	18.63	22.89	20.266
1000	20.78	18.26	21.58	24.65	21.62	21.378

Plot of MSS vs delay

Task #3

MSS = 500 bytes
N = 64 bytes

Delay of file transfer by probability loss

Prob of Packet Loss	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Average
0.01	12.02	12.73	12.51	12.75	15.14	13.03
0.02	17.23	17.65	21.28	19.09	19.31	18.912
0.03	24.21	24.00	21.17	22.63	25.93	23.588
0.04	31.44	27.31	31.59	35.11	27.20	30.53
0.05	36.24	38.65	31.01	34.24	36.34	35.296
0.06	38.76	39.82	42.74	44.13	43.27	41.744
0.07	49.67	45.51	52.30	42.12	49.26	47.772
0.08	53.16	49.20	57.70	48.40	56.23	52.938
0.09	56.59	57.19	53.13	60.24	55.89	56.608
0.10	66.15	61.17	65.84	64.61	58.19	63.192

Plot of probability of loss vs delay