Project Report

Computer Networking I

Abhishek Shroff

November 30, 2010

Packet Drops

As it can be seen with the plots, the time taken to transfer a file over is exponential in the packet drop percentage of the client of server. The shape of the curve is the same in both cases.

The transfer time increases exponentially because this further magnifies the 5% packet drop on the reciprocating side, creating a multiplicative relationship, not an additive one.

Server Error	Transfer Time
1	36.372392
2	40.857309
5	54.903165
10	82.454052
20	142.129560
30	214.943202
40	311.6805
50	456.109089
60	702.423622
70	1133.759895
80	1911.586673
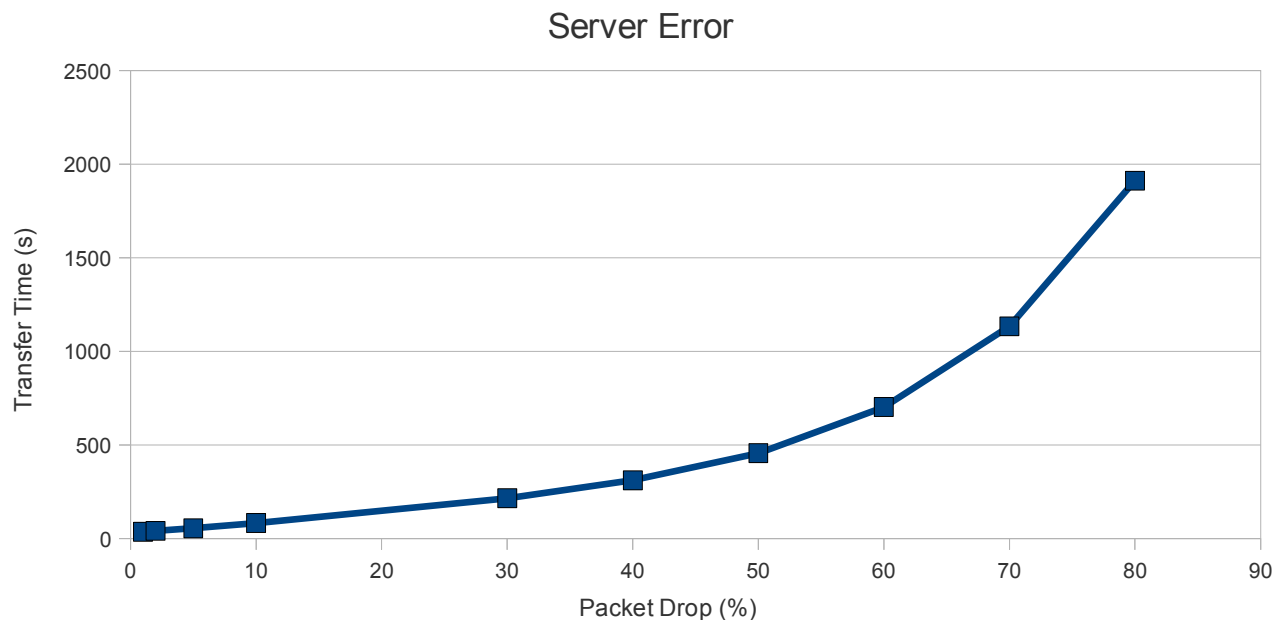
Server Error

Similarly, the file transfer time increases exponentially as the packet drops increase on the client size. However, transfer time is more for client drops as compared to packet drops on the server, for the same drop rate.

Client Error	Transfer Time
1	29.180273
2	36.653018
5	51.30911
10	87.587833
20	154.4249
30	251.790394
40	364.1301
50	550.848914
60	798.651874
70	1223.416617
80	2089.651664

Client Error
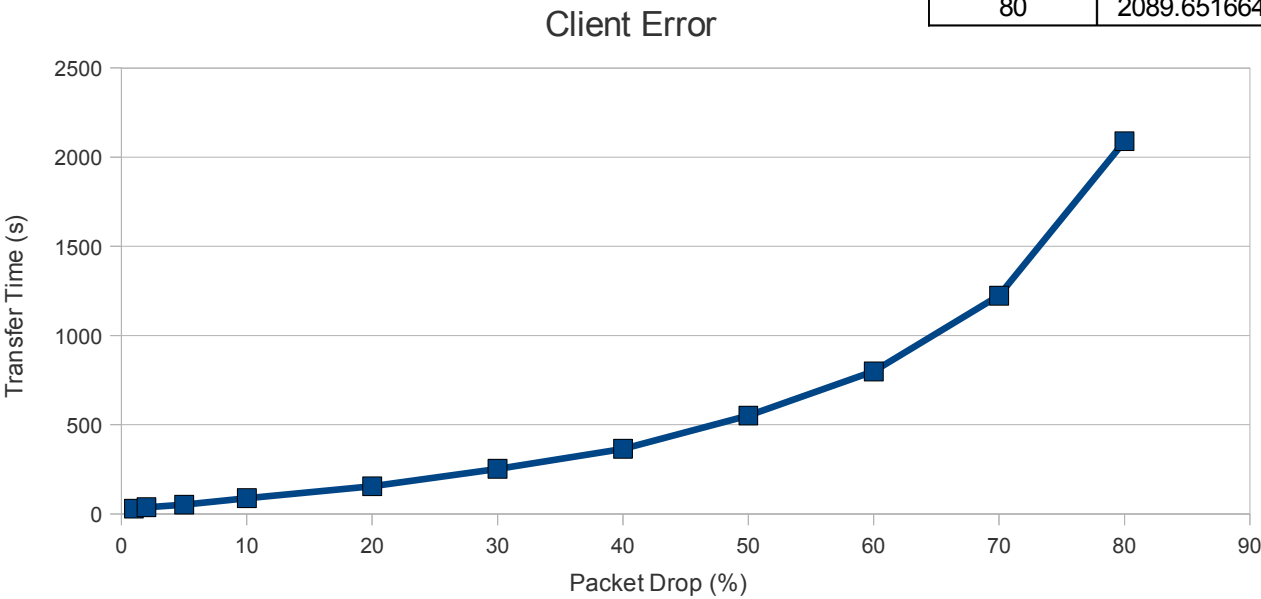
## Packet Size

Transfer time decreases significantly as packet size drops. In fact, even when this is seen on a logarithmic scale, it trends below the diagonal connecting the start and end points.

This result is to be expected because most of the transfer time is involved in network overhead of sending packets. After a certain point, increasing packet size does not affect transfer time.

Packet Size	Transfer Time
100	582.576264
200	289.846969
400	145.223073
800	70.271048
1600	35.983912
3200	18.870924
6400	9.60615
12800	5.189364
25600	2.366079
51200	1.92011

The stop in increase is because the disk access time starts to dominate over the total transfer time of the file.

Packet Size
(Linear)
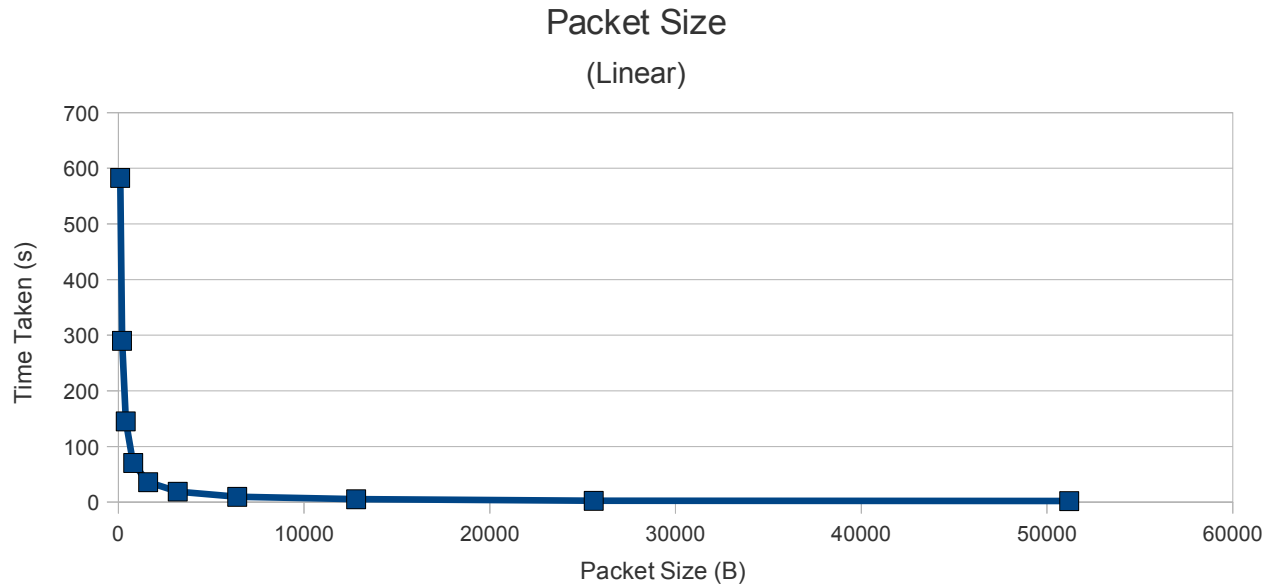
Since the data cannot be visualized very clearly in a linear scale, seeing it in a logarithmic scale gives a better representation of the trend.

Packet Size
(Logarithmic)
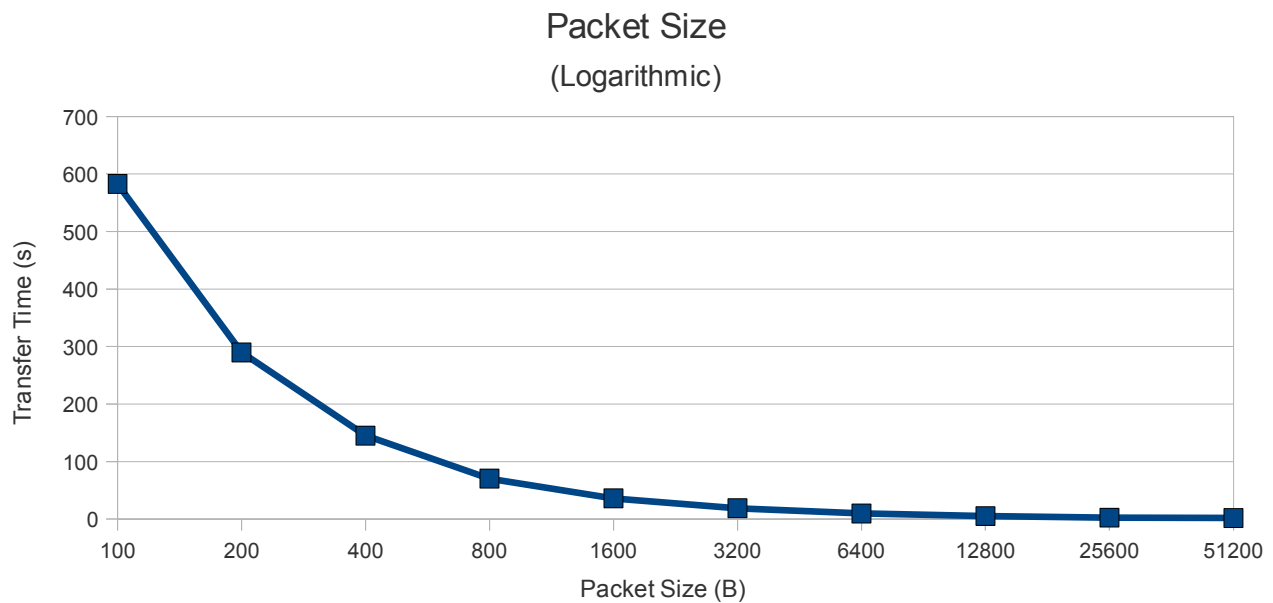
File Size

As expected, transfer time increases almost linearly as the file size increases. This has been shown in a *semi*-logarithmic scale in order to be able to see all the points clearly.

It is clear to see the linear trend for each of the three orders of magnitude.

File Size(kb)	Transfer Time
100	0.659442
500	2.494022
1000	5.86129
5000	27.997356
10000	60.127651
50000	283.770513
100000	575.398037

File Size
(Semi-Logarithmic)