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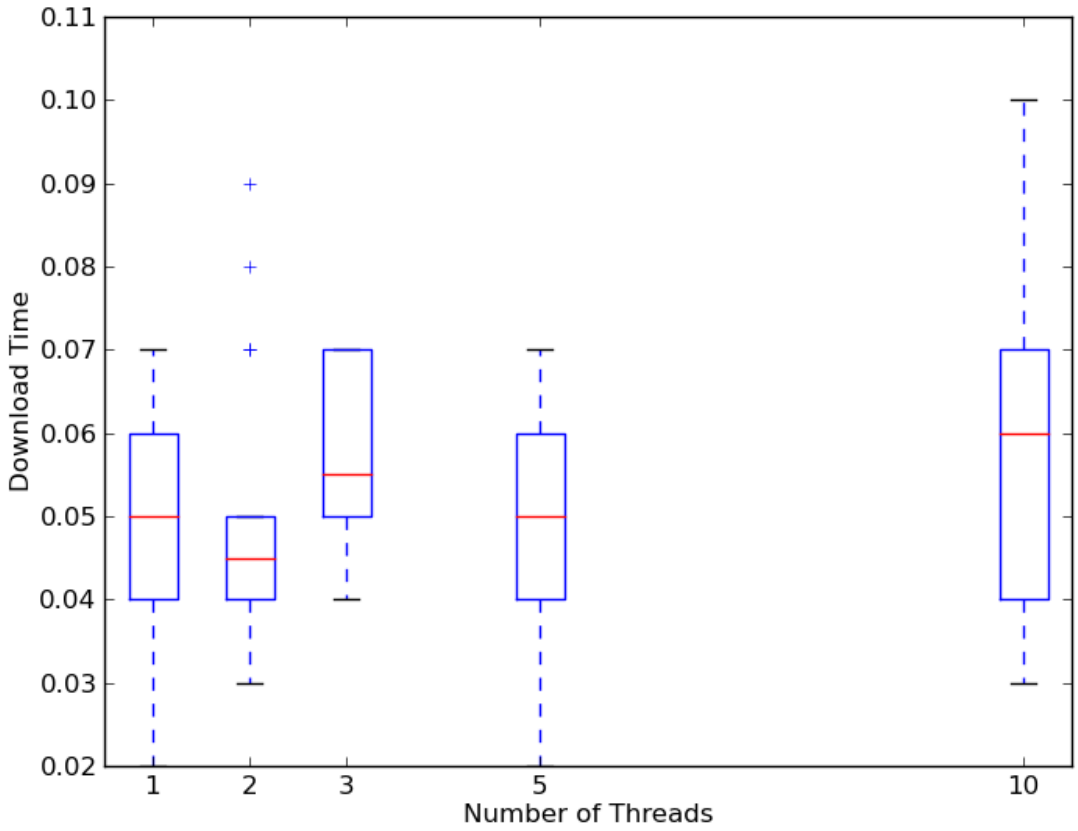
CS 360
Download Accelerator Report

For the download accelerator experiment I used a laptop running Ubuntu 13.10 with a wired network connection and wifi turned off. I ran the experiment at the OIT building. Using www.speedtest.net to test my download and upload speed, the laptop I used was averaging download speeds of 36.7 mbps and upload speeds of 21.2 mbps. The experiment consisted of running the experiments.py script found at https://github.com/zappala/python-networking-and-threading/tree/master/download-accelerator and my own downloadAccelrator.py script which was stored in the same folder as the experiments.py script. I used the urls pointing to the corbt.com. After the experiment had completed I plotted the data generated by the experiment using plot.py found in the directory. Figure 1 is the plotted data of the download speeds of the small file. As you can see from Figure 1 my experiment did not produce a nice curve like one might expect. Instead it appears to be almost random and in fact downloading with ten threads appears to be the slowest time for downloading small files. One possible explanation for this that establishing a connection does cost time and if you have a fast enough connection and bottlenecks throughout the path that the packets travel, then you might just be wasting time establishing 10 connections. Another possible explanation is network connection fluctuation. The experiment ran several minutes in length and I was not monitoring my network speed during the experiment is it is possible that there was moderate to severe change in network speed during the experiment. Further examination of both Figures 2 and 3 which represent download times for medium and large files respectively, tend to further strengthen both of the possible solutions that Figure 1 indicates. As you move from small to medium to large files, the number of threads appear to have less and less affect, This could correspond with the fact that the files are taking longer and longer to download so the time spent in establishing more connections is more and more negligible. As for the second possible explination In every test there are extreme outliers. The experiment is using the same program to download the same file from the same server so the only variable left is network connection. This still might be caused by many different events like more clients connecting to the server, different paths taken, or more bandwidth being consumed on the client side,


0.11
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
Download Time
1
2
3
5
10
Number of Threads

Fig, 1

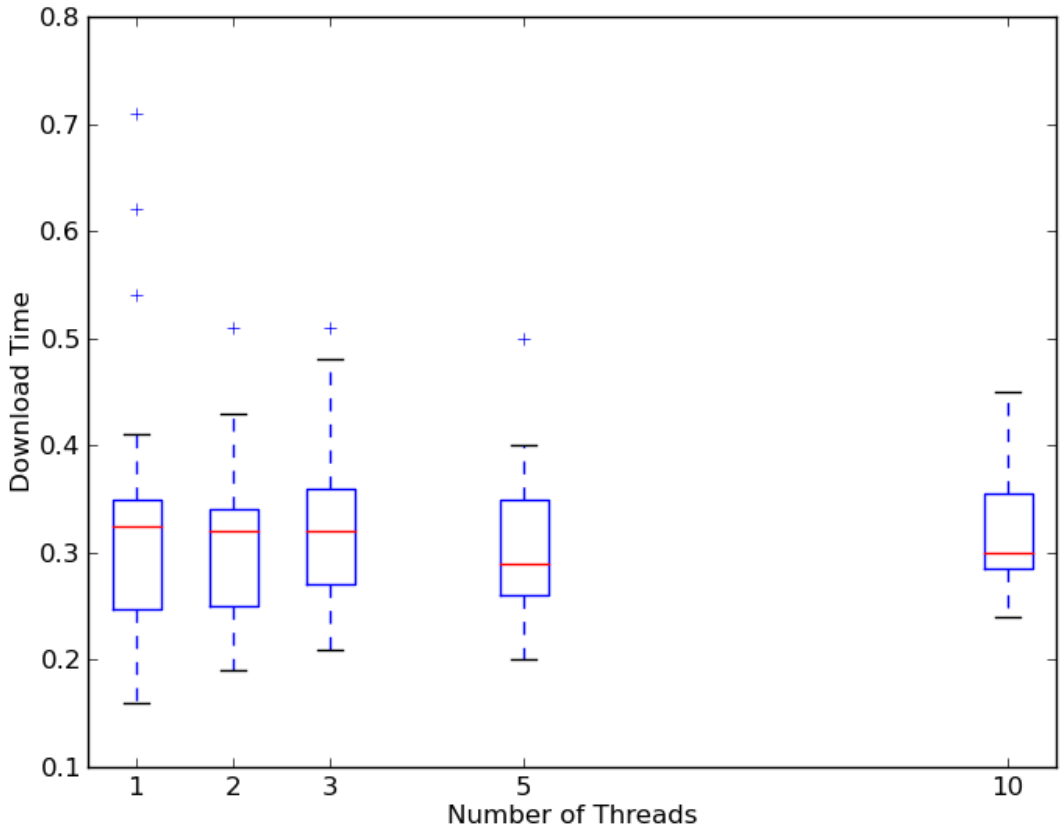

0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
Download Time
1
2
3
5
10
Number of Threads

Fig. 2

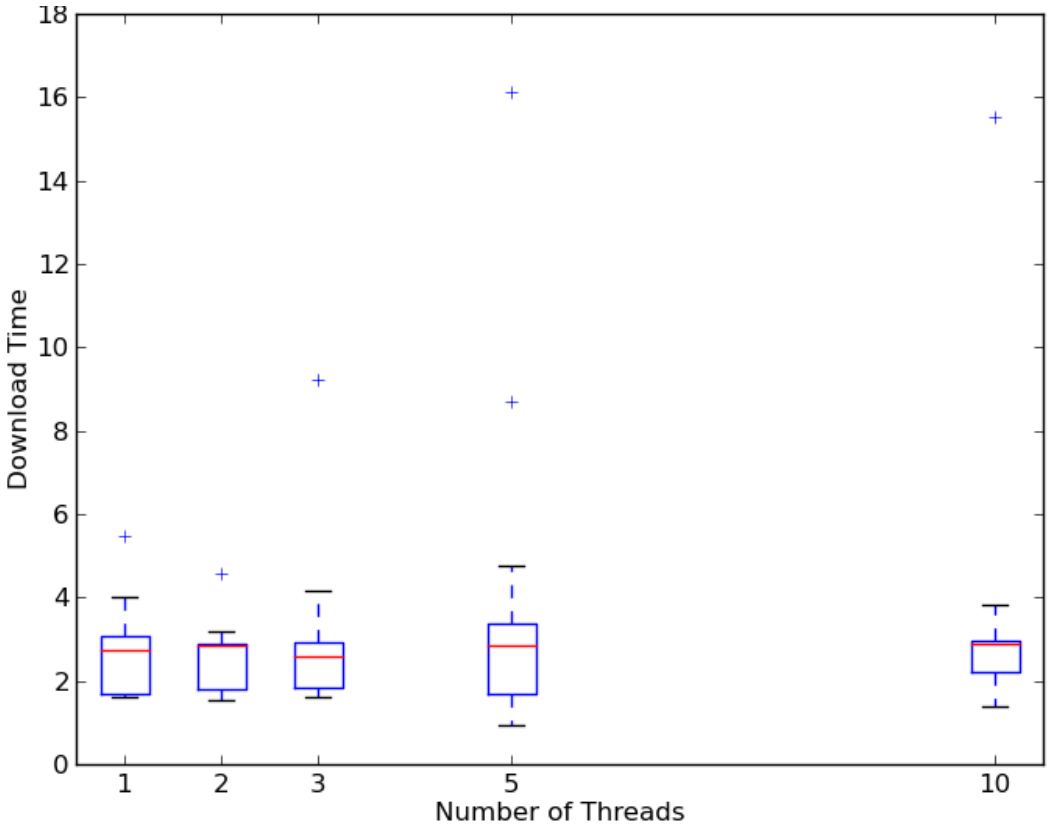


Fig. 3