Load Testing of Web Server

Programming Assignment 4

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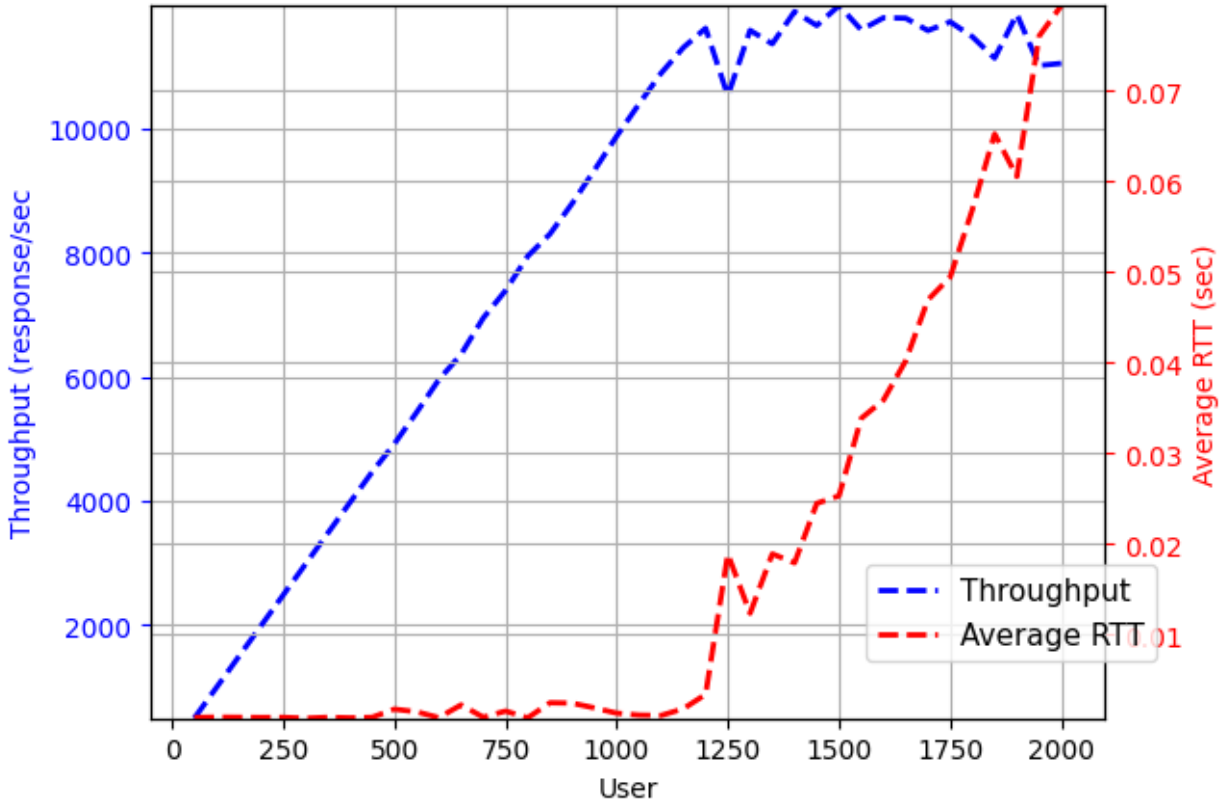
Results



This graph displays the curves for Throughput and Average Response time with varying server load.

Parameters used -
Number of users : 50, 100, 150, 200 …, 2000 (40 data points)
Think time : 0.1 second
Duration of iteration : 60 seconds
Network : Localhost

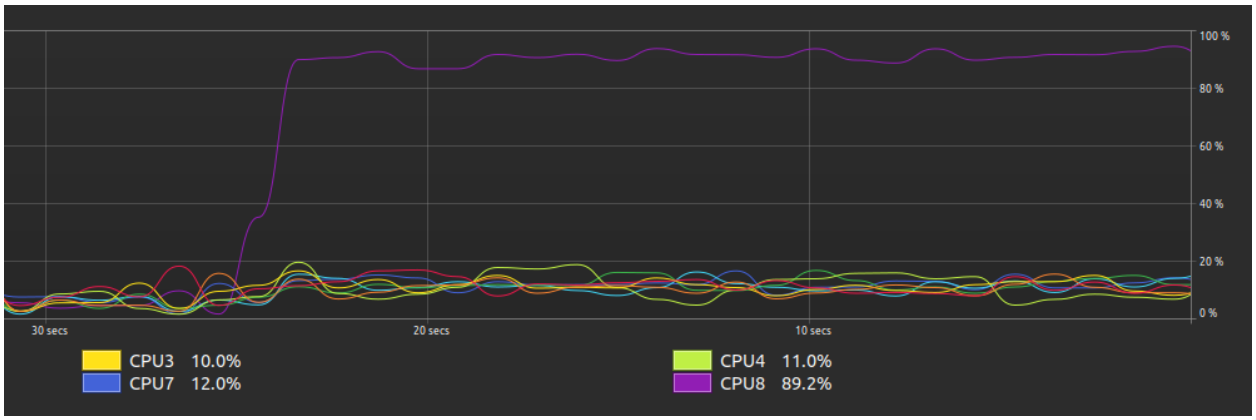
System specifications -
i7 7th Gen, Quad core

1. Used 1 core for server
2. Used 3 cores for load generation

This graph shows that with increasing the server load, throughput keeps on increasing until it reaches a threshold point, after which it becomes almost

constant. We can see that this threshold comes approximately to be 11500 responses per second, and it was achieved at about 1200 users.

On the other hand, Average response time keeps on increasing as the server load increases, since most of the requests now spend more time waiting for there, which in turn increases the effective response time.



For the threshold, it can be seen that the CPU is the actual reason for the bottleneck. After the load of the server is increased, CPU maxes out to 90% and it cannot be increased further.

Data Points Captured

Users	Throughput	Average RTT
50	496.67	0.000870
100	993.33	0.000904
150	1490	0.000890
200	1986.67	0.000870
250	2483.33	0.000881
300	2980	0.000783
350	3476.67	0.000888
400	3973.33	0.000829
450	4466.77	0.000882
500	4920.27	0.001785
550	5426.8	0.001495
600	5955.07	0.000849

650	6363.13	0.002256
700	6950.33	0.000898
750	7391.53	0.001573
800	7946.67	0.000831
850	8304.27	0.002490
900	8797.4	0.002450
950	9332.83	0.001921
1000	9881.37	0.001342
1050	10396.57	0.001132
1100	10896.67	0.001093
1150	11309.73	0.001829
1200	11620.27	0.003417
1250	10531.17	0.018878
1300	11586.8	0.012354
1350	11368.9	0.018906
1400	11889.23	0.017912
1450	11663.8	0.024475
1500	11985.83	0.025309
1550	11593.9	0.033848
1600	11789.53	0.035867
1650	11782.73	0.040196
1700	11583	0.046916
1750	11724.5	0.049419
1800	11483.5	0.056879
1850	11138.57	0.065214
1900	11846.63	0.060519
1950	11019.37	0.075995
2000	11054.23	0.079361