ENTERPRISE APPLICATION ARCHITECTURE

CA 2 – LOADTEST CPU UTILISATION

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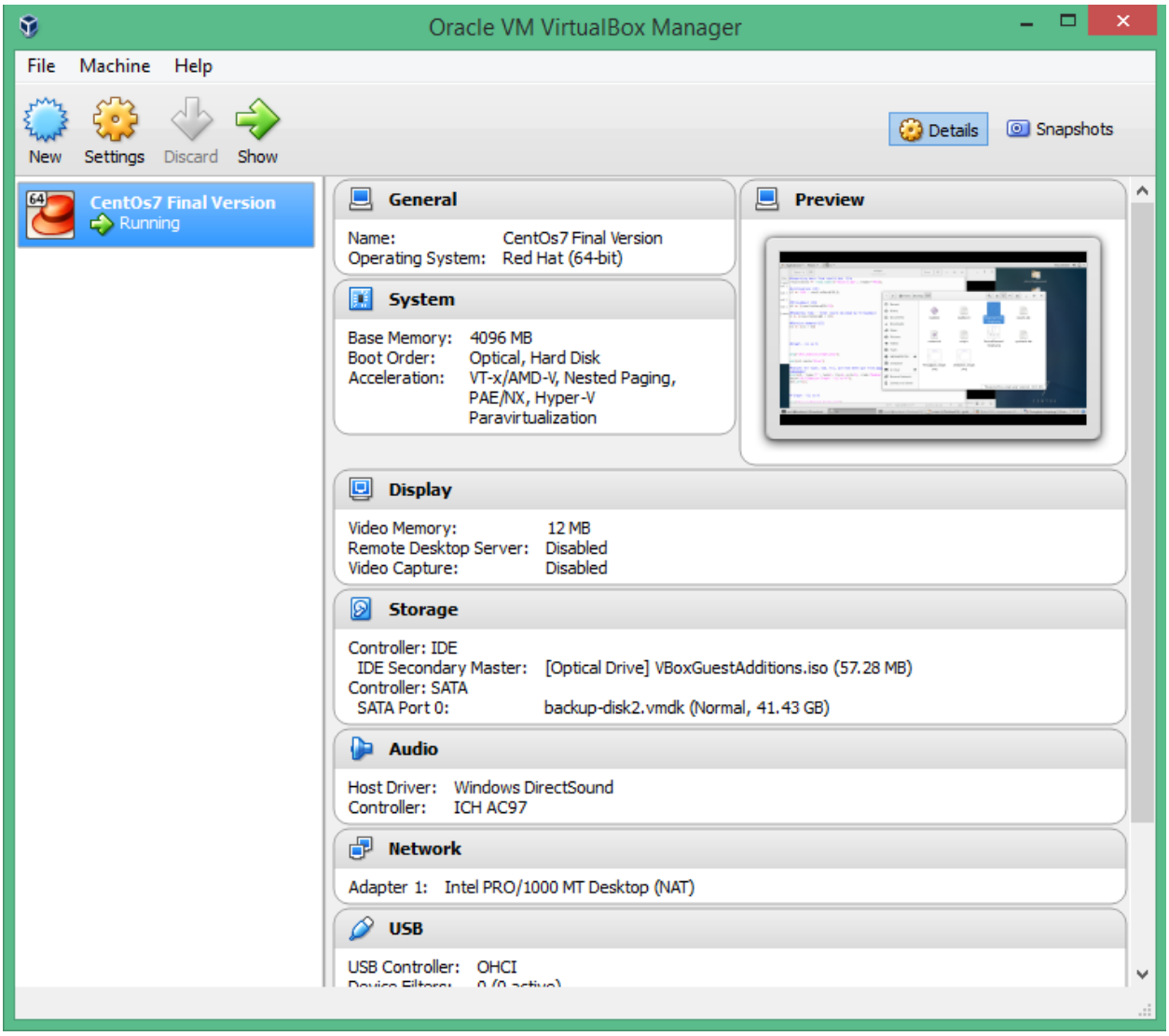
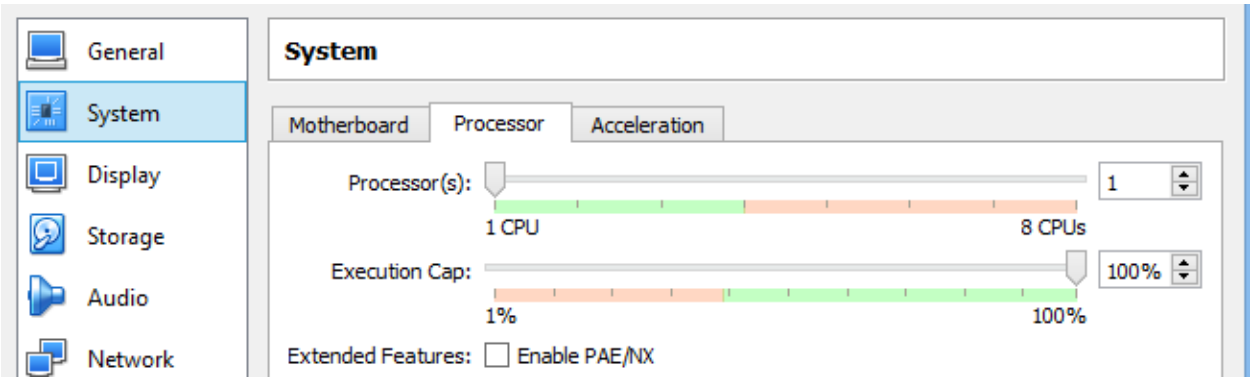
OPEARTING SYSTEM TESTED

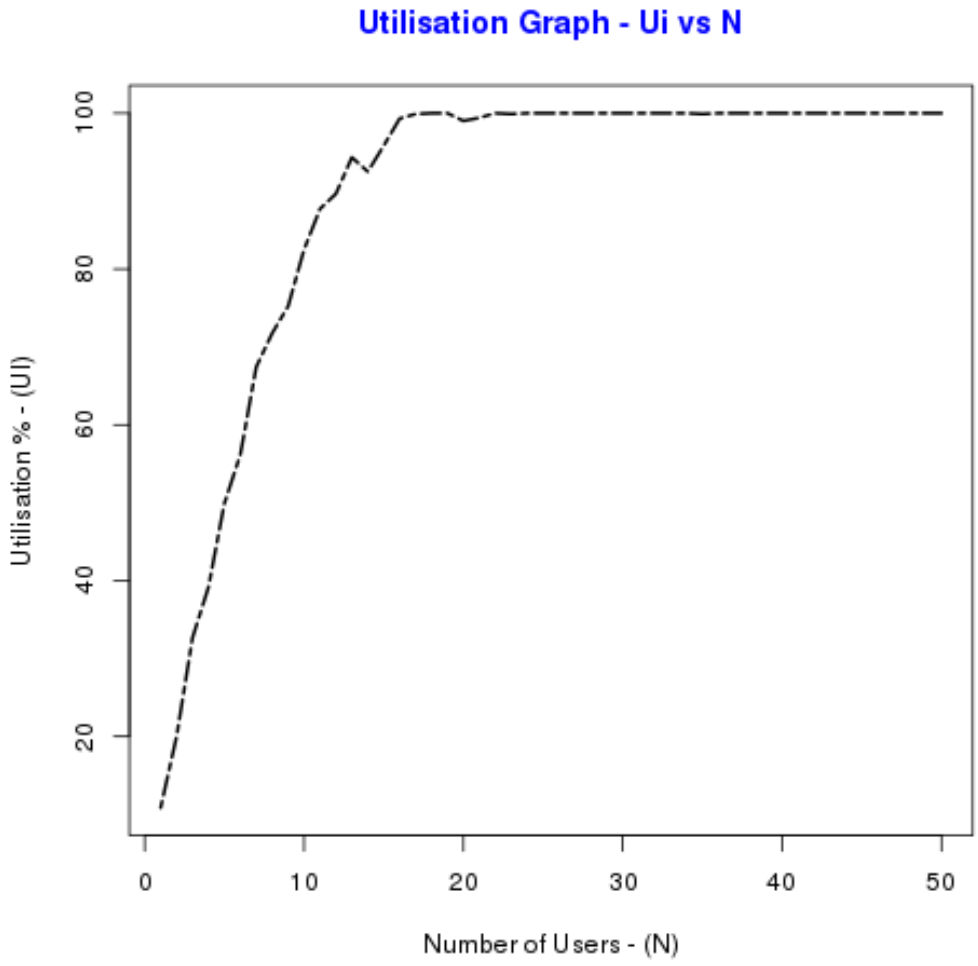
I have used CentOS inside a virtual box as part of my assignment. CentOS is a Red Hat operating system. It was given single core processor to make it easier to show the system under load or pressure tests and was also given 4096 MB base memory.





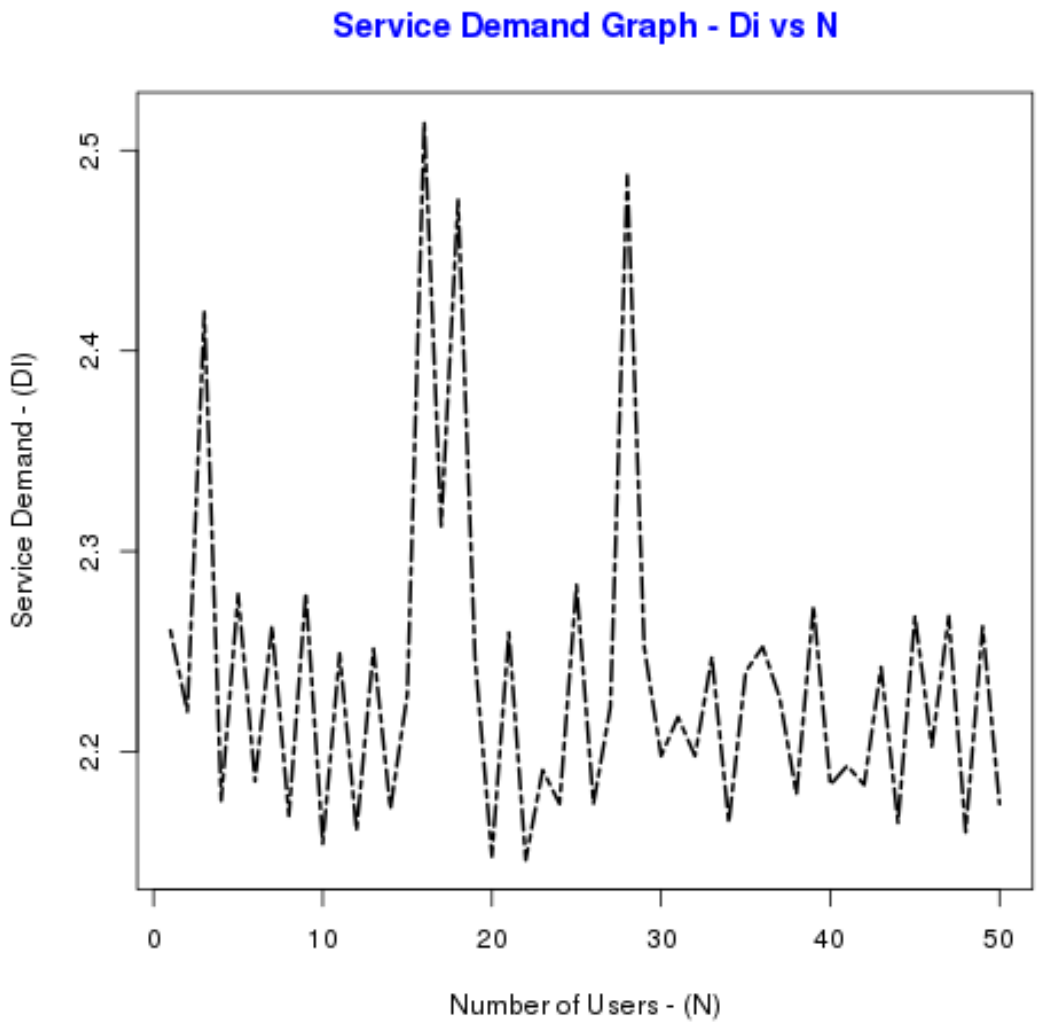
GRAPH 1 – UTILISATION GRAPH (UI VS N)

The utilisation (Ui) graph is obtained by subtracting the CPU idle time from 100. This value is then passed in when plotting the graph. Below you will be able to see the graph that was created after plotting. This graph shows the expected output that one would expect to see when the CPU is under pressure. The load on the CPU is caused by the increase in the users. We can see that the utilisation hits the maximum 100% CPU utilisation after the first 20 users. During the first few users we can see a curve that continues to grow increasingly until the CPU reaches 100%. We can see a continuous line after the first 20 users because the CPU becomes maxed out, meaning the growth stops.



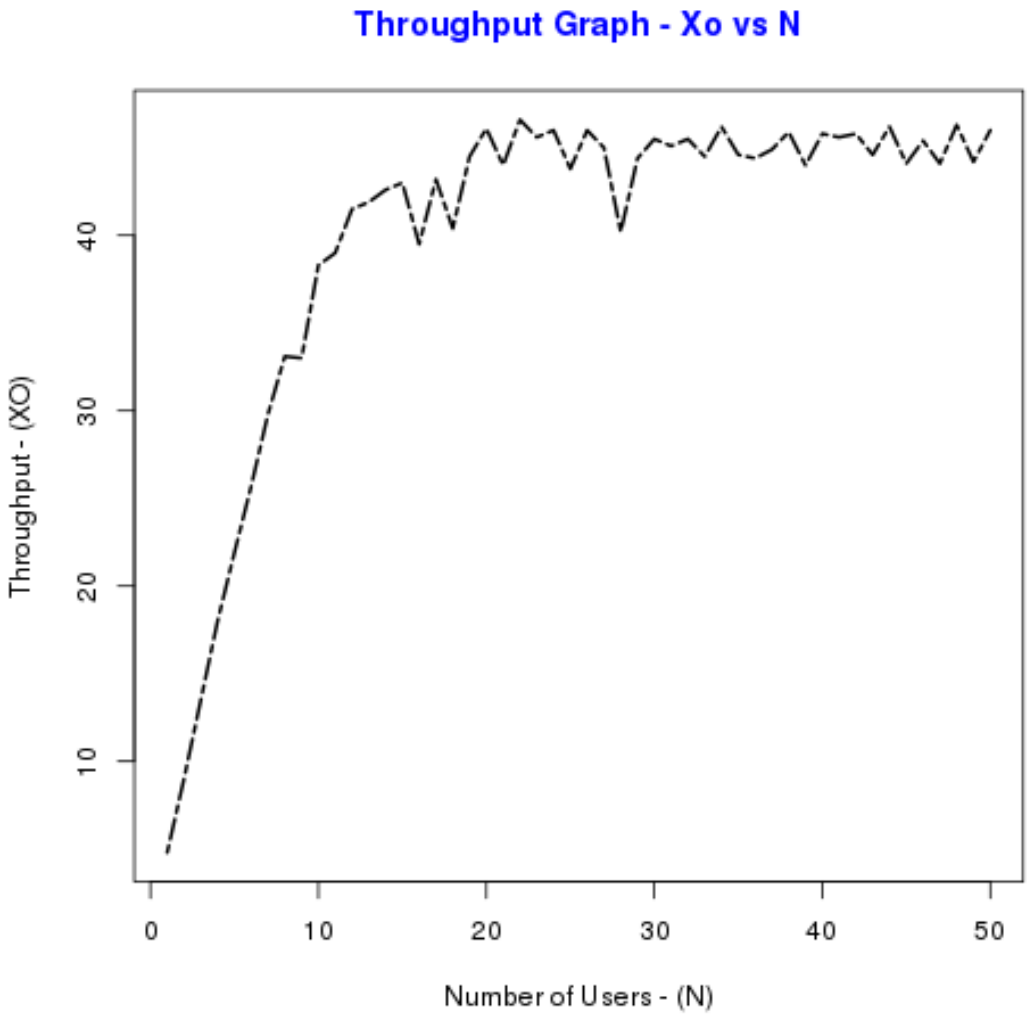
GRAPH 2 – SERVICE DEMAND GRAPH (DI VS N)

The Service Demand (Di) graph is obtained by dividing the Utilisation (Ui) value by Throughput (Xo). This value is then passed in when plotting the graph. Below you will be able to see the graph that was created after plotting. The graph that was created is very interesting in a way that it is very varied. Some transactions take more time in obtaining a service from a resource. This I believe would depend on the capability of the processor of the system that is being used to run the test.



GRAPH 3 – SYSTEM THROUGHPUT GRAPH (XO VS N)

The system throughput is a measure of the maximum rate the transactions can be completed. The System Throughput (Xo) graph is obtained by dividing the number of completed transactions (Co) value by timeframe (T). In our case T is 10, because it is the amount of time our loop is running for each user. The result shows an expected knee curve. There is a steady growth just like as in the utilisation graph. Below is the graph that was plotted.



GRAPH 4 – RESPONSIVE TIME GRAPH (R VS N)

The Responsive Time (R) graph is obtained by dividing the number of users (N) value by Throughput (Xo). Response time is the measure of the amount of time a resource takes to respond to a request by the user. Below is the graph that was plotted. We are able to see a near enough straight-line graph. This shows us that as the users increase the time it takes for the CPU to respond also increase.