D10 – Item 6

PERFORMANCE REPORT

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1. Introduction

In this report, we provide statistics and results of the performance tests carried out on project Acme Newspaper, as well as the conclusions that the development team inferred from them, including bottlenecks caused by the system in a user's running machine. The report will include screenshots to clarify and provide evidence of the different tests and analysis.

2. Report

A performance test has been made for every test case in the C level of the Acme Newspaper project, and run with a load of 10 concurrent users. Some statistics obtained from these tests are: 1000 samples per test, 329 average ms load, 61 median, 6 ms minimum request time on average, 420 ms maximum request time on average, 34.6 packets/second average throughput.

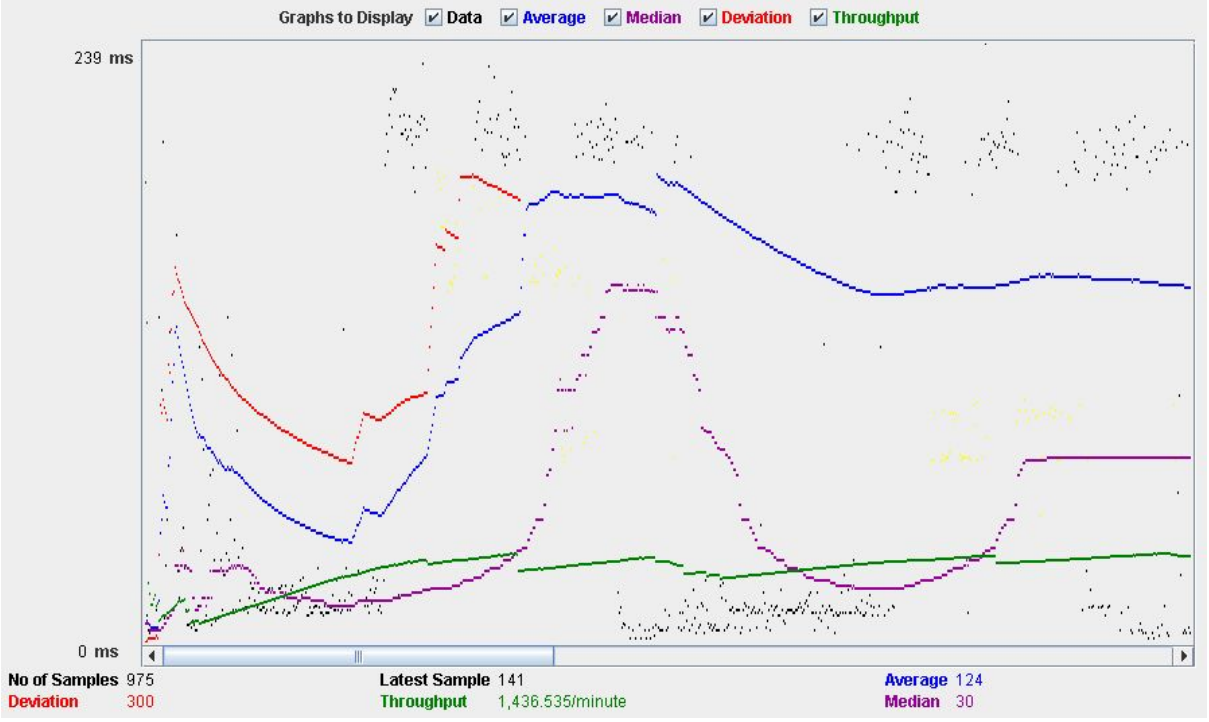

Fig. 1: Graph showing the evolution of a newspaper management use case test.

Regarding potential errors, not many cases have shown more than 15% errors in one or more of their steps, and these errors could be attributed to spurious calls made during test execution. These calls did not affect the tests' results themselves, but safeguarding the system against them when possible should be worth studying.

The average 90% line for all tests was 259 ms, from which we can infer no heavy load or bottleneck exists in the system.

Label	# Samples	Average	Median	90% Line	Min	Max	Error %	Throughput	KB/sec
/	79	10	6	14	3	99	0.00%	2.0/sec	5.8
/user/create.do	60	59	14	200	4	413	0.00%	1.6/sec	5.4
/welcome/ind...	30	8	7	13	5	17	0.00%	48.6/min	2.4
/security/login....	29	24	11	61	5	118	0.00%	53.5/min	2.9
/j_spring_sec...	29	29	13	67	8	130	0.00%	53.7/min	2.8
/msdownload/...	261	17	13	22	10	125	0.00%	8.0/sec	2.6
/msdownload/...	29	20	20	23	13	47	0.00%	54.0/min	47.7
	438	251	199	327	39	6112	34.02%	13.4/sec	2045.8
/images/logo....	20	4	3	8	2	15	0.00%	56.8/min	18.2
TOTAL	975	124	30	226	2	6112	15.28%	23.9/sec	1704.3

Fig 2: Statistics for a user registry and login use case test.

The main computer used to test the system had high-end modern specifications, and as such, no apparent bottleneck was detected. However, the element more prone to spikes of high activity was the disk queue, suggesting a potential bottleneck in low-end computers. Likewise, processor time would become a problem given enough time in low to mid end computers.

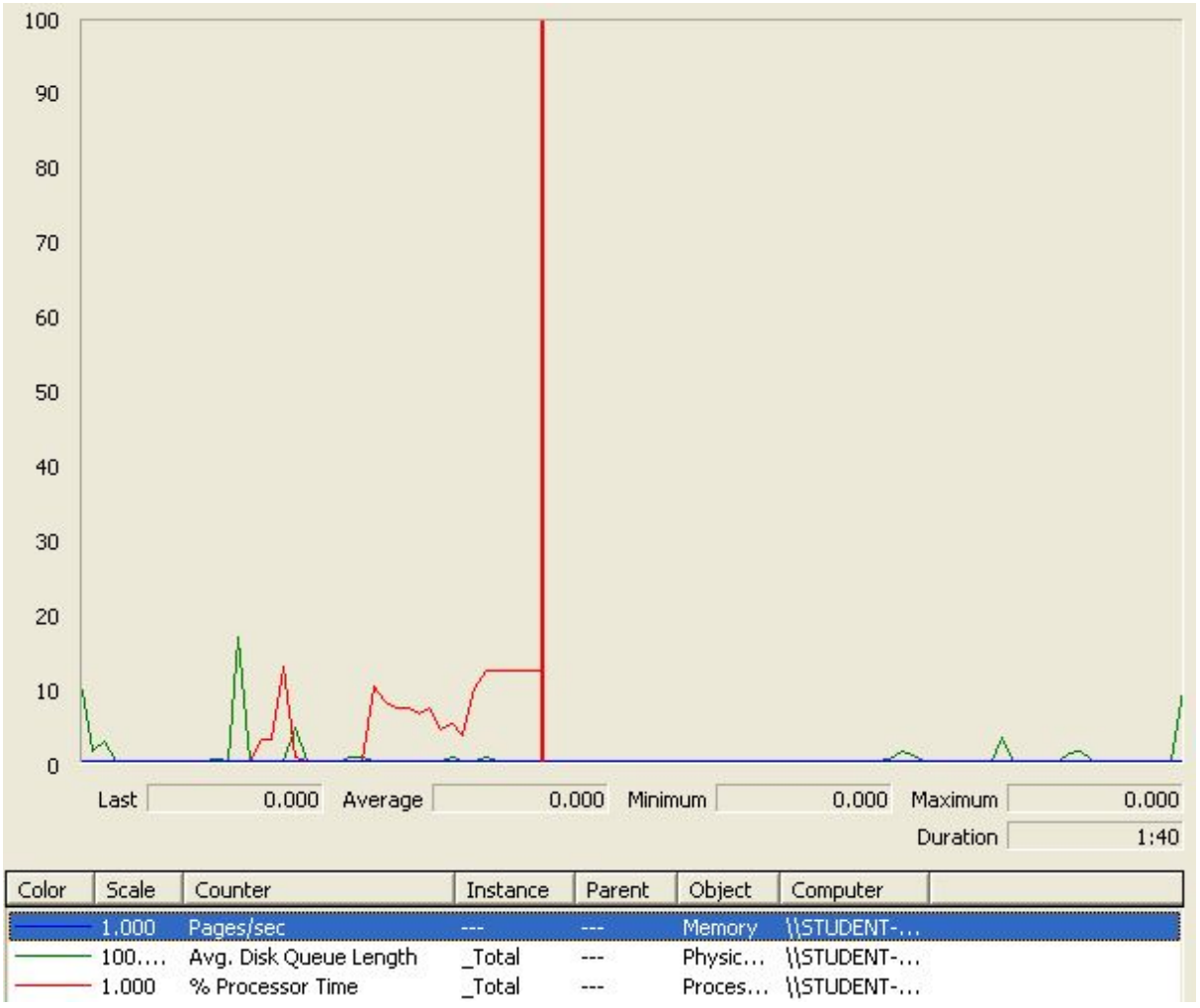

Fig. 3: Display of the Windows performance monitor screen during a test execution.

3. Concluding notes

Given the test computer's specifications, it would be difficult to calculate the degree of bottlenecking or the amount of concurrency needed to saturate a mid or low end computer. However, the executed tests prove that it is possible to run the system concurrently with a high number of users in modern machines.