D11 – Item 5

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 in its 2.0 version, 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, 102 average ms load, 123 median, 8 ms minimum request time on average, 180 ms maximum request time on average, 12.4 packets/second average throughput.

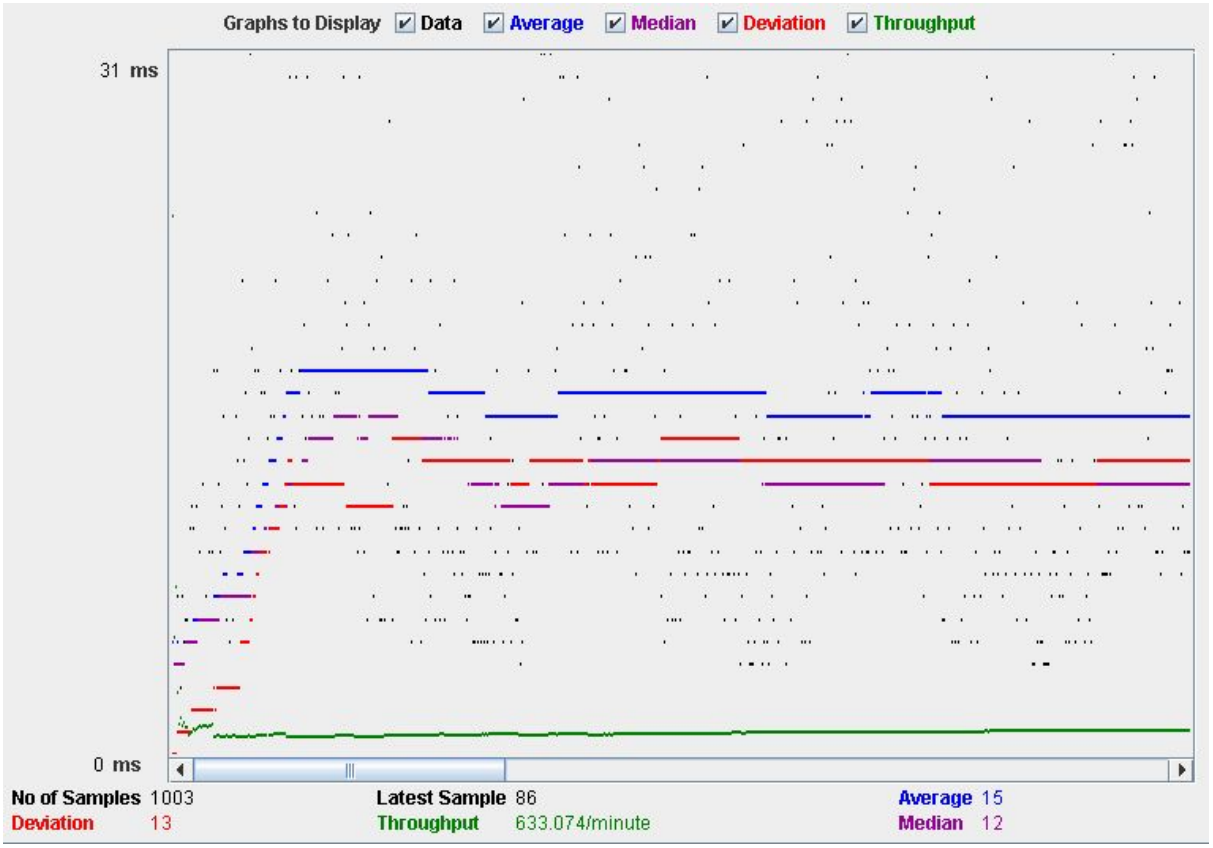

Fig. 1: Graph showing the evolution of avolume management use case test.

Regarding potential errors, almost every use case presents 0% errors during test execution, and these errors could be attributed to spurious calls made during test execution. These calls did not affect the tests' results themselves, and the development team considers the current efforts to improve system stability and security are working, so we will improve them in future projects.

The average 90% line for all tests was 198 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
/	120	7	6	12	3	64	0.00%	1.3/sec	4.0
/security/log...	60	7	6	13	4	24	0.00%	41.1/min	2.2
/j_spring_s...	60	11	10	14	7	43	0.00%	41.1/min	2.2
/folder/list.do	273	14	10	24	6	125	0.00%	3.1/sec	14.2
/mailMessa...	120	26	27	38	10	146	0.00%	1.4/sec	6.8
/mailMessa...	160	15	13	30	5	79	0.00%	1.9/sec	7.9
/mailMessa...	57	16	10	29	8	82	0.00%	42.1/min	2.7
/mailMessa...	53	15	15	20	10	38	0.00%	39.2/min	3.1
/mailMessa...	100	22	18	26	13	133	0.00%	1.5/sec	7.0
TOTAL	1003	15	12	29	3	146	0.00%	10.6/sec	44.2

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 processor, suggesting a potential bottleneck in low-end CPUs. Likewise, page recovery could become a problem for low-end computers.

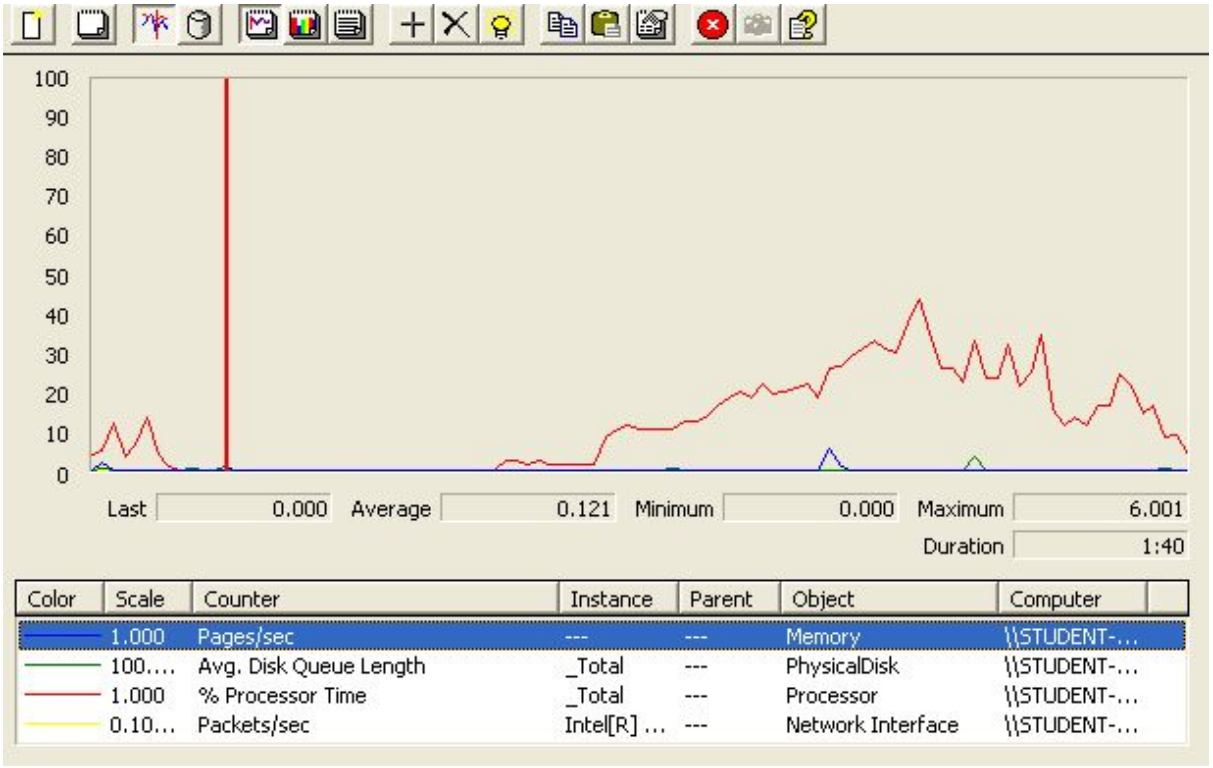

Fig. 3: Display of the Windows performance monitor screen during a test execution.

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.