**CS 436**

**In-class practice (07.03.2024)**

**EXTERNAL STRESS TEST**

**Group #:2**

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Today you will implement the simple architecture given on Figure 1.

WEB SERVER

TRAFFIC TEST TOOL CLIENT

Figure 1 Architectural Overview

You need 2 VMs to achieve this.

**STEP 1: Spin-off VMs**

Ubuntu 22.04, 1GB RAM with apache2 installed.

**STEP 2: Use ab tool to test the performance of your system**

Use ab tool to test the server. Define what you consider as light, medium and heavy traffic in the table below:

|  |  |
| --- | --- |
|  | ab command with exact parameters |
| Light Traffic | ab -c 10 -n 20 <http://172.26.37.129/> & |
| Medium Traffic | ab -c 100 -n 200 <http://172.26.37.129/> & |
| Heavy Traffic | ab -c 1000 -n 2000000 <http://172.26.37.129/> & |

Enter the CPU utilization parameters for the cases indicated. Note that the client will create the traffic.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Total CPU Utilization | | |
|  | Light Traffic | Medium Traffic | Heavy Traffic |
| Web Server | %20 | %40 | %60 |
| Test Tool Client | %50 | %75 | %100 |

Enter how the load affects the responsiveness of the web server?

|  |  |  |  |
| --- | --- | --- | --- |
|  | Observed Latency by the User | | |
|  | Light Traffic | Medium Traffic | Heavy Traffic |
| Latency (min) | 0 | 2 | 14 |
| Latency (max) | 174 | 48 | 67056 |
| Latency (mean) | 5 | 50 | 454 |

Discuss today’s work among your group and summarize your findings below:

|  |
| --- |
| From the provided details, it's clear that as traffic intensity increases from light to heavy, the server's responsiveness deteriorates. This is evidenced by the CPU utilization on both the web server and the test tool client, as well as the observed user latency. Light traffic results in minimal impact, with low latency and CPU utilization. However, under heavy traffic, both CPU utilization and latency spike significantly, indicating the server struggles to handle the load efficiently. This exercise underscores the importance of optimizing server capacity and resource management to maintain performance under varying loads. |