Load Testing with Stepping Thread Group in JMeter

: Implementation and Analysis

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This test was conducted using modern and realistic parameters to ensure that it did not cause any excessive load to the URL.

The purpose of this test is to showcase the implementation of the Stepping Thread Group in JMeter, a powerful load testing feature. This test aims to demonstrate the ability to gradually increase the number of threads over time, simulating realistic user behavior and load patterns.

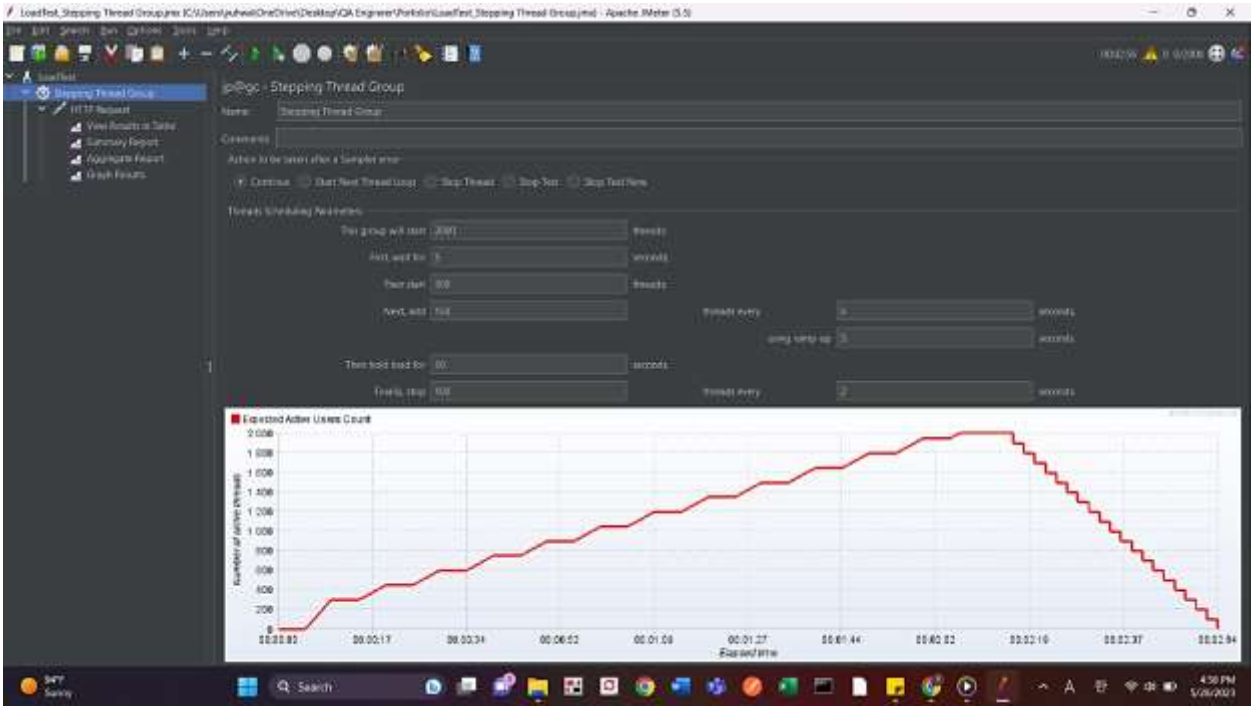

Figure1. Stepping Tread Group

The Stepping Thread Group is designed to simulate a load test with specific configurations. The test is set to start with 2000 threads. Initially, it waits for 5 seconds before starting the test with 200 threads. The next step involves adding 200 threads every 20 seconds using a ramp-up of 10 seconds. This allows the load to gradually increase over time. Once the desired thread count is reached, the load is held constant for 100 seconds, ensuring a stable and sustained load on the system under test. Finally, the test is stopped by reducing the thread count by 20 threads every 2 seconds.

This configuration helps simulate a realistic user scenario, where the load gradually increases, remains constant for a period, and then decreases. It provides insights into how the system performs under different load conditions and helps identify any performance issues or bottlenecks. By analyzing the metrics and results obtained from this test, such as response times, throughput, error rates, and resource utilization, valuable information can be gathered to optimize the system's performance and ensure it can handle the expected load effectively.

Figure2. Summary Report

Based on the information obtained from the Summary report of the Load Test, we can draw significant conclusions about the system's performance.

Error Rate: The error rate recorded during the test is 0.00%, indicating that no errors or failures were encountered while executing the test scenarios. This suggests that the system handled the applied load successfully without any critical issues. However, it is important to note that the absence of errors in a single test does not guarantee error-free performance in all scenarios or under different loads.

Throughput: The throughput value measured at 213.0 sec represents the number of requests processed per second. In this test, the system demonstrated a throughput of 213.0 requests per second, indicating its capacity to handle the incoming workload. This value reflects the system's efficiency in processing requests within a given time frame.

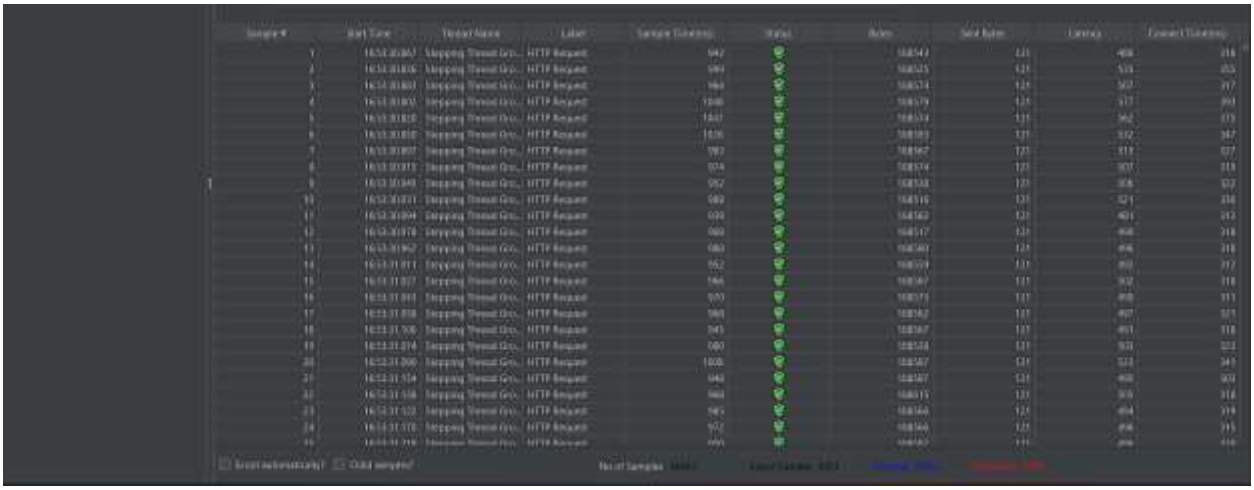

Figure 3. View Results in Table

Limitation of the Test.

It's crucial to consider the limitations of the test results. While the load test provides valuable insights into the system's performance under specific conditions, it may not fully simulate real-world scenarios. The test was conducted under controlled conditions and with a predefined set of test scenarios, which may not fully represent the actual user behavior or the variability of network conditions.

Therefore, it's important to interpret the results within the context of the test setup and consider conducting additional tests with different parameters or scenarios to gain a comprehensive understanding of the system's performance.