Load Testing Report

Introduction

I use Apache Jmeter to do load testing and analyze how the cache system and authorization system influence the efficiency.

Load Testing Environment

Hardware

- CPU : Intel(R) Core(TM) i7-9700K CPU @ 3.60GHz   3.60 GHz
- RAM: 16 GB

Software

- mysql 8
- redis 5.0
- python 3.7
- django 3.2
- Apache Jmeter 5.5

Configuration of the load testing tool

- Number of Threads: 1000
- Loop Count: 10
- Ramp-Up Period: 0 S

Test Cases

Search operation without cache

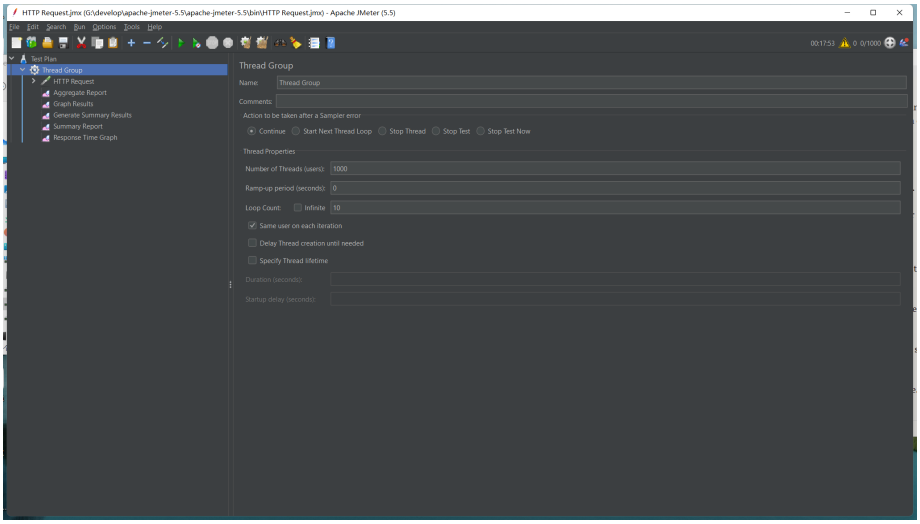
Testing Purpose

To test and compare the system performance with and without caching, how long it takes to complete.

Testing Steps

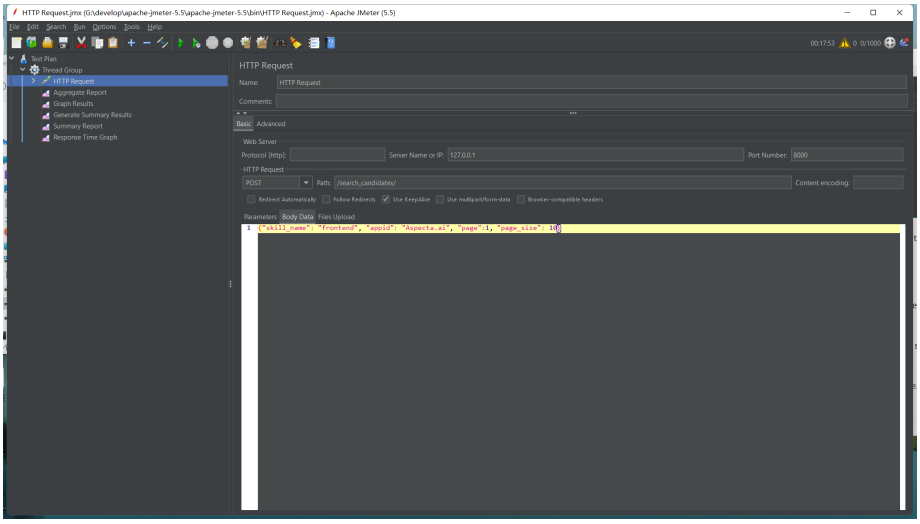
a. Start JMeter and create a new test plan.

b. Add a thread group and set the number of threads and test duration.



c. Add HTTP request defaults and set the target server address, port, and protocol.

d. Add an HTTP request and set the request method as POST, request path, and request parameters.



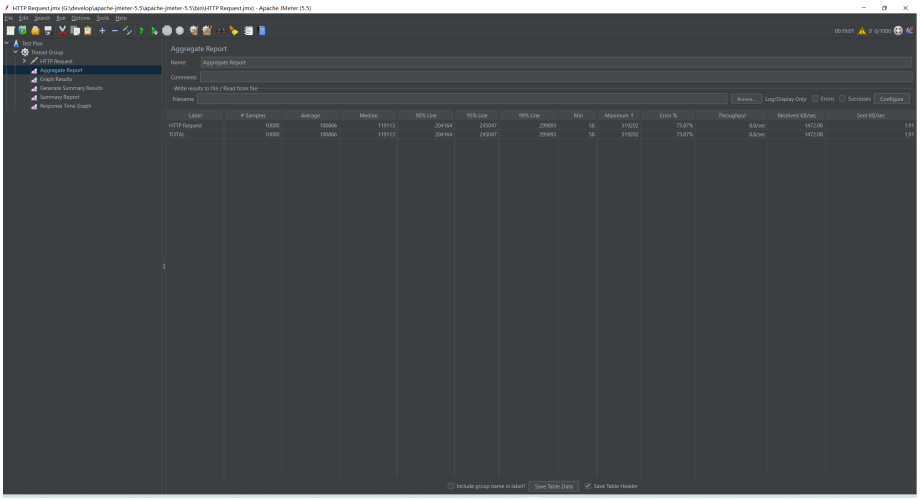
e. Add an aggregate report generator and set the report file path and other parameters.

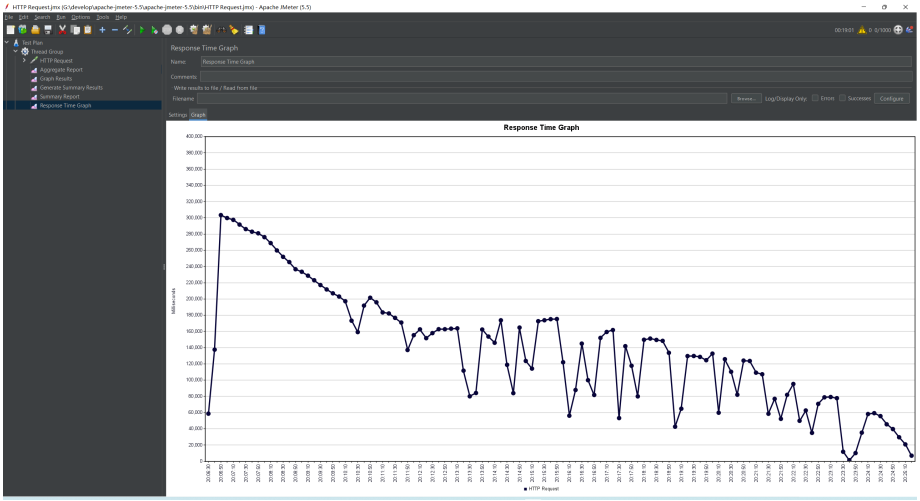
f. Start the test and wait for it to complete.

Test Results

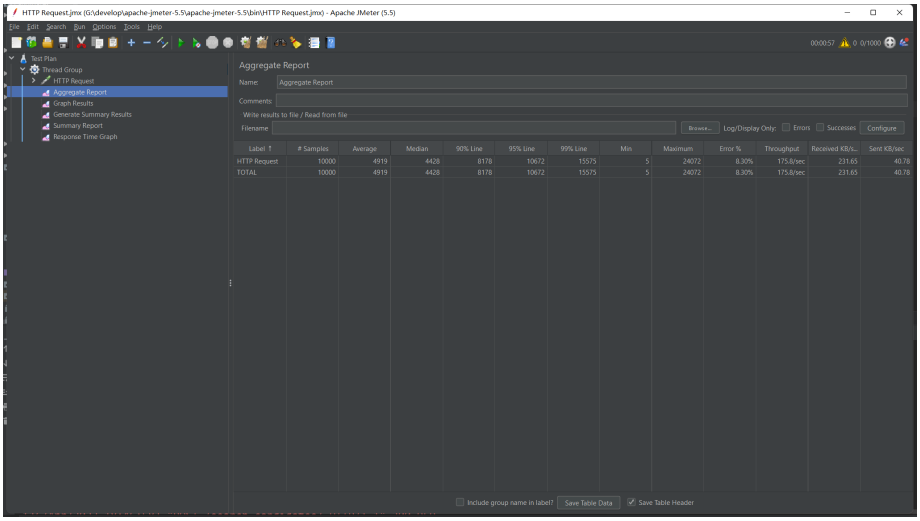
With Permission

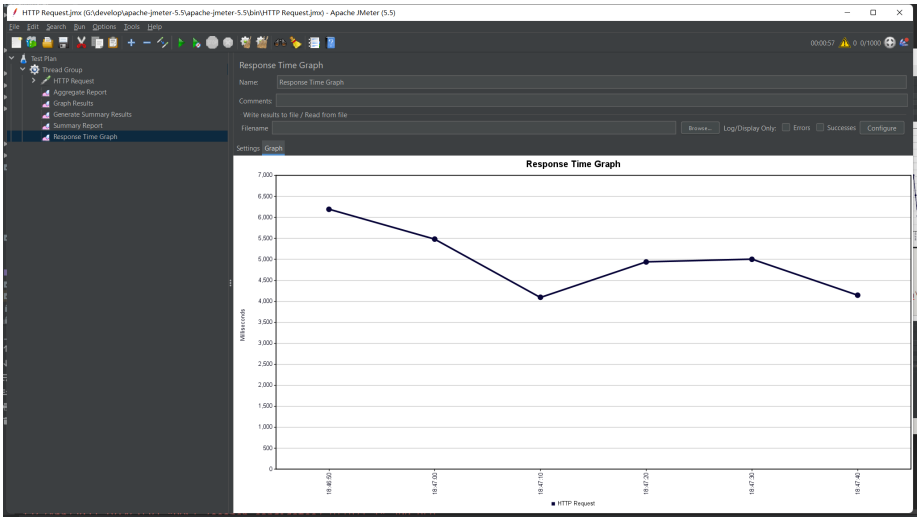
test1: Without Cache





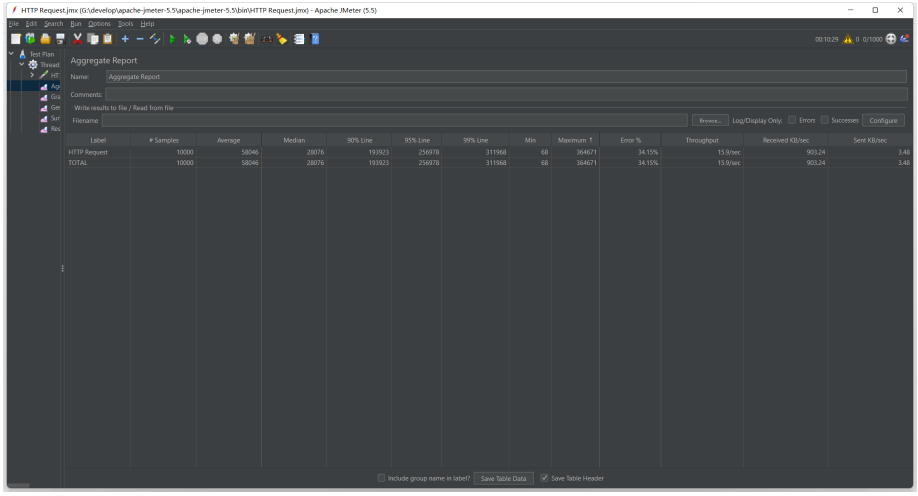
test2: With Cache

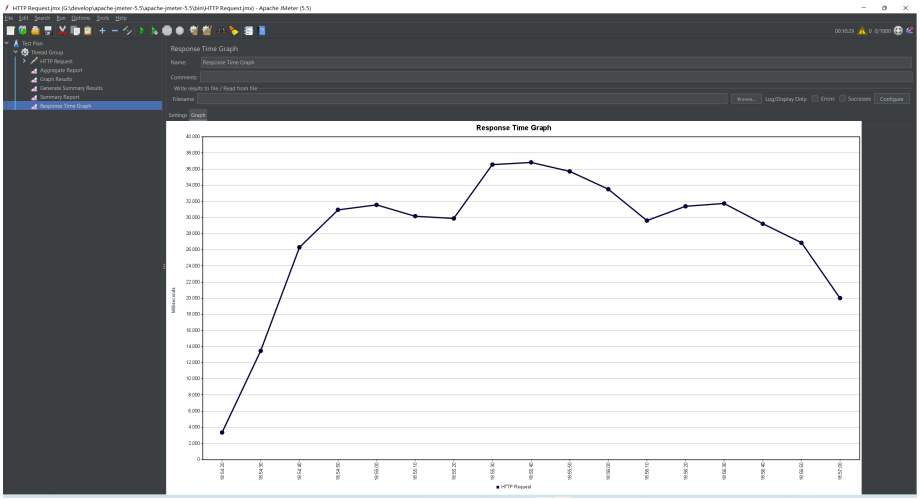




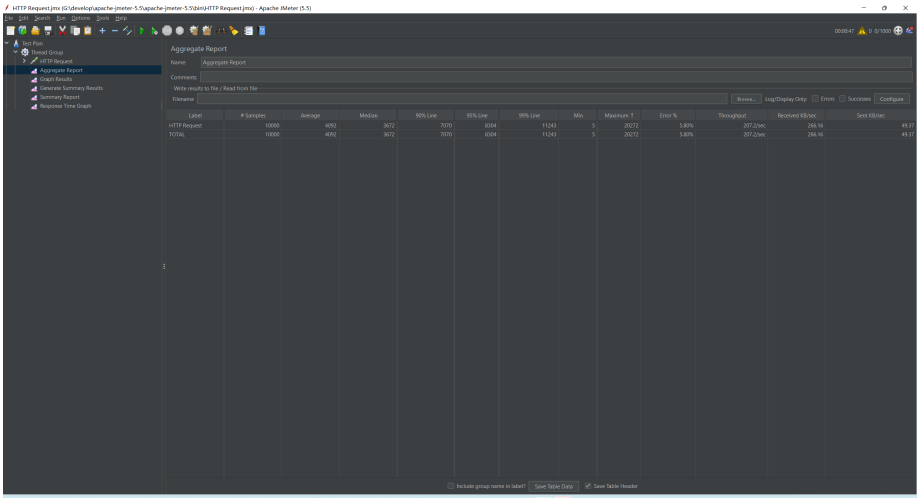
Without Permission

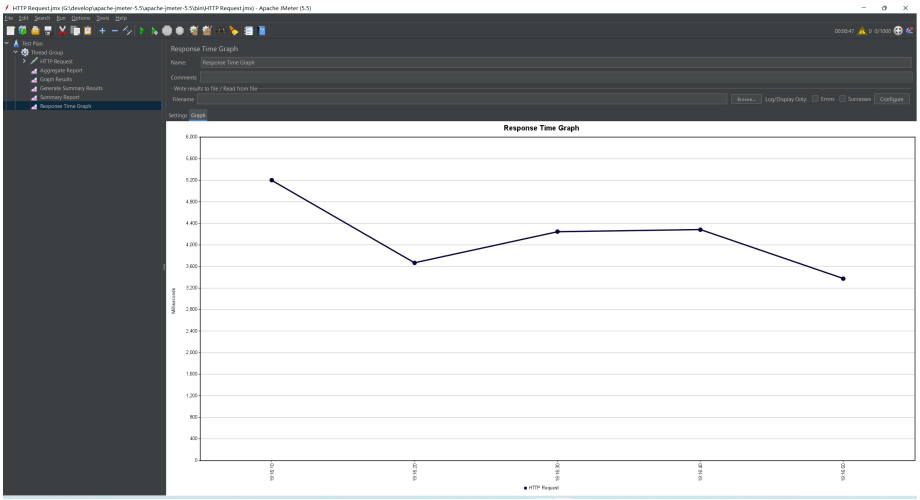
test3: Without Cache





test4: With Cache





description

In test1 and test2, compared cache and non-cache.

In test2 and test4, compared permission and non-permission.

Recommendation

Add cache functionality to improve system performance. And, consider using other optimization techniques such as load balancing and database optimization to further improve system performance. Additionally, add throttling to protect DB.