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**Performance testing document**

OFS Platform

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Contents

[Introduction 3](#_Toc121247059)

[Overview of performance testing metrics 3](#_Toc121247060)

[Server-side performance testing and KPIs 4](#_Toc121247061)

[Non function requirements – OFS 5](#_Toc121247062)

[Results against OFS Serverless API 5](#_Toc121247063)

# Introduction

Performance testing allows us to examine whether the system behaves as specified initially in earlier stages during non-functional requirements definition phase. In this document we will go over important evaluation metrics when it comes to performance testing and will look at key performance indicators in server-side testing. Afterwards, we will review what were the chosen non-functional requirements are, followed by the testing results using JMeter.

# Overview of performance testing KPI metrics

Performance testing metrics reflects the simulation of load test against the application infrastructure to determine whether non-function requirements have been met or not. It can also give us an idea about what the expected cost could be in given scenarios and can reflect design/architectural design choices.

The following are a list of testing metrics:

* CPU Usage
* Memory Usage
* Response times
* Average Load time
* Throughput
* Average latency
* Bandwidth
* Error rate

# 

# Server-side performance testing

Server-side performance testing is vital to perform since it essentially examines the core application functionality. In this test we will utilize some KPI metrics to evaluate the test results. We will utilize JMeter for this test.

Please keep in mind the following important terms for JMeter

1. **Number of Threads** - The maximum number of users you want to run.
2. **Ramp-Up Period (per second)** - Defines how long it takes for JMeter to ramp up from zero users to X number of threads. It is in terms of seconds.
3. **Loop Count** - Defines how many times you want each user to run your script.

For this test we will look at the following KPI Metrics:

* Average latency: It is important to make sure that the average response for a user to be a reasonable number (less than 5 seconds)
* Error rate: Since OFS is an enterprise solution the overall simulation of load test should not get unavailable service responses for more than 10%

# Non function requirements – OFS

The following are the specifications of how Oman freelancing platform system should be:

1. The system should be scalable; it should be able to handle over 200000 users with an average latency of 5 seconds.
2. The system should be available; it should have a maximum downtime of 5 minutes.
3. The system should be cost-efficient; the total cost should align with resources used and not for idle state.

# Results against OFS Serverless API

Below screenshot demonstrate the results of loading test against /POST method in a serverless environment using JMeter and keeping in mind the KPI mentioned in the previous section.

A screenshot of a computer

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# Conclusion

The system managed to handle 210k requests with a 5% error rate. The average latency for a user is 200ms. The system can handle around 50 users at a time and around 200k users get to interact with the OFS backend. By utilizing serverless technology the cost-efficient non-functional requirement is automated met. Therefore, we met all non-functional requirements.