Performance Test Report

for

<Application name>

**Version <version number>**

# Revision Summary

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Version No. | Date | Revision Description | Author(s) | Approver(s) |
| 1.0 | 1-May-2021 | Initial document | Gary Fan | Martin Yuen |
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# Approval / Signoff

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| --- | --- | --- | --- |
| Approver name and title | Function or Department | Signature or Email attachment | Signoff date |
| Martin Yuen (Lead of Process and Governance) | IT Process & Control |  | 1-May-2021 |
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# Introduction

A performance problem in Production can cause catastrophic impact to our business. It may lead to service interruption, data corruption, and result in financial loss and damage to our reputation. What makes the situation worse is that performance problems usually cannot be fixed timely. The resolution may involve investigation, code change, or acquisition of new hardware, which takes time to implement.

Performance testing is therefore an important step to ensure the system meets performance requirements from both business and technical perspectives before the system goes live.

# Performance Test

The purpose of performance testing is to identify application's response time, throughput, maximum number of concurrent users supported by the application, application behavior under different load conditions, application’s breakpoint, resources (e.g. CPU, memory, disk I/O) utilization of the system, and, the system’s bottlenecks and the triggering conditions. The test can also verify application/system stability under stress or long period of operation to ensure application performance meets SLA, and to demonstrate the system has sufficient capacity to support projected business growth.

## Assumptions, Constraints, Risks and Dependencies

### Assumptions

<Assumptions should be documented concerning the available release software, test environment, dependencies, tools, and test schedule associated with the performance test. Examples are shown below.>

| No. | Assumption |
| --- | --- |
| 1 | Since the performance test environment is 50% scaled down of the production environment, so 50% scaled-down load (of production) was considered in the tests. |
| 2 | xxxxxxxxxxxxx |
| 3 | xxxxxxxxxxxxx |

### Constraints

<Constraints should be documented concerning the available release software, test environment, dependencies, tools, test schedule, and other items pertaining to the performance test. Examples are shown below.>

|  |  |  |
| --- | --- | --- |
| No. | Constraint | Impact |
| 1 | The Performance Test environment has 50% of the servers that Production has. | The scaling factor of the Performance Test to Production is 50%. All Production Load Models that were executed in the Performance Test environment was at 50% of the full Production load Model to represent a 100% Load. |
| 2 | The Performance Test environment had older data that Production had, which caused an error for some of the data scenarios. | The data in Production had not been purged since 2000; searches in Production intermingle with older data than Performance Test can. This lead the error reported during the test which was not considered in the result analysis. |
| 3 | xxxxx | xxxxxxx |
| 4 | xxxxx | xxxxxxx |

### Risks

<Risks should be documented concerning the test schedule, release software, dependencies, tools, test approach test environment and other items pertaining to the performance test. Examples are shown below.>

| No. | Risk | Impact | Action/Mitigation | Assigned To |
| --- | --- | --- | --- | --- |
| 1 | There may be a potential functional change in the application which may cause an impact to the performance test result | HIGH | The dev team is performing an impact analysis to see what would the change be impacted to the system | Development Team |
| 2 | xxxx | xxxx | xxxx | xxxx |
| 3 | xxxx | xxxx | xxxx | xxxx |

### Dependencies

<Dependencies should be documented concerning the latest build, test data, schedule, test environment and other items pertaining to the performance test. Examples are shown below.>

| No. | Dependencies | Impact | Action/Mitigation | Assigned To |
| --- | --- | --- | --- | --- |
| 1 | Upstream system A needs to be available | HIGH | Awaiting for the availability of the system A. The performance test cannot be executed without system A ready | IT Team |
| 2 | xxxx | xxxx | xxxx | xxxx |
| 3 | xxxx | xxxx | xxxx | xxxx |

## Performance Test Requirements

<Write down the justification to include the performance testing for this project. Write down the performance test requirements which were agreed during the performance test planning phase.>

## Acceptance Criteria

<Please write down the Acceptance Criteria of the performance test>

## Performance Test Approach

<Write a high-level approach for performance testing of the application under test.>

### Scope of testing

### Test Scenarios

<Provide performance test scenarios/cases to be carried out in the performance test>

### Performance Testing and Monitoring tool

<List out the performance test and monitoring tools that will be used in the performance test. Examples are shown below.>

| Tool Name | Description | Licensed / Open-Source? | No. of licenses |
| --- | --- | --- | --- |
| Apache Jmeter | Version 5.3 | Open-Source | NA |
| DynaTrace | Version 1.2 | Licensed | NA |
| xxxxxxx | xxxxxxxx | xxxxxxxx | xxxxxxx |

### Test data preparation

<Write down the performance test data and volume to be prepared and used>

## Test Environment

<Provide the details of the H/W and S/W of the test environment where the performance test will be carried out. Examples are shown below.>

|  |  |
| --- | --- |
| **Server name** | App server:  hkeqxuwebf020  DB server:  HKEQXUWEBF030 |
| **Application version** | V3.1.1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test Machine** | **System** | **Processor** | **RAM** | **System Type** |
| Standard E4 v3 | RHEL 7.5 | 4 Core | 32G | 64 bit OS |
| UNIX | Solaris 10 | 3 Core | 160G | 64 bit OS |

## Performance Test Result

### Load Test Result

### 2.6.1.1 Round <n> of performance test result

### Performance test result

Test scenario: E.g. To assess system performance under peak load condition

Test date and time: E.g. Dec 2, 2020 22:00 - 22:31

Test environment: E.g. UAT

Testing tool: E.g Apache Jmeter

Status: **PASS**

Details of test result:

Location of test result:

### Server resource utilization result

<Use Dynatrace to capture CPU, Memory, Disk IO, JVM Metrics, API response time and database response time while carrying out the performance test>

E.g. DB Server

Graph to show the CPU & memory consumption during performance testing period

Status: **PASS**

Observation and result:

Location of test result:

### Observation and conclusion

<The measured figures in testing and monitoring is able to derive the observation and conclusion, base on the result to forecast the production situation>

### Stress Test Result

### 2.6.2.1 Round <n> of performance test result

### Performance test result

Test scenario: E.g. To assess system performance under 1 x peak load, 2 x peak load and 3 x peak load

Test date and time: E.g. Dec 3, 2020 22:00 - 22:31

Test environment: E.g. UAT

Testing tool: E.g Apache Jmeter

Status: **PASS**

Details of test result:

Location of test result:

### Server resource utilization result

<Use Dynatrace to capture CPU, Memory, Disk IO, JVM Metrics, API response time and database response time while carrying out the performance test>

E.g. DB Server

Graph to show the CPU & memory consumption during performance testing period

Status: **PASS**

Observation and result:

Location of test result:

### Observation and conclusion

<The measured figures in testing and monitoring is able to derive the observation and conclusion, base on the result to forecast the production situation>

## Conclusion and Recommendations

<Summarize the performance test execution result. Examples are shown below.>

| Test Run | Date & Time | Test Scenario Summary | Status | Defect number | Severity | Action / Mitigation Plan |
| --- | --- | --- | --- | --- | --- | --- |
| Round 1 - LT1 | Date and Time, on which test was conducted | Load Test - 1 Hour test with peak load | Passed |  |  |  |
| Round 1 – LT2 | xx/xx/xxxx  From xx:xx to xx:xx | Repeat Load Test - 1 Hour test with peak load | Passed |  |  |  |
| Round 1 - ST1 | xx/xx/xxxx  From xx:xx to xx:xx | Stress Test - 1 Hour test with 100% of peak load | Passed |  |  |  |
| Round 1 – ST2 | xx/xx/xxxx  From xx:xx to xx:xx | Repeat Stress Test - 1 Hour test with 100% of peak load | Passed |  |  |  |
| Round 2 - ST1 | xx/xx/xxxx  From xx:xx to xx:xx | Stress Test - 1 Hour test with 200% of peak load | Passed |  |  |  |
| Round 2 – ST2 | xx/xx/xxxx  From xx:xx to xx:xx | Repeat Stress Test - 1 Hour test with 200% of peak load | Passed |  |  |  |
| Round 3 – ST1 | xx/xx/xxxx  From xx:xx to xx:xx | Stress Test - 1 Hour test with 300% of peak load | Passed |  |  |  |
| Round 3 – ST2 | xx/xx/xxxx  From xx:xx to xx:xx | Repeat Stress Test - 1 Hour test with 300% of peak load | Passed |  |  |  |
| Round 3 – ST3 | xx/xx/xxxx  From xx:xx to xx:xx | Repeat Stress Test - 2 Hour test with 300% of peak load | Failed | PT0001 | Low | We will arrange to upgrade the H/W resource within 6 months after system go-live.  Target completion date: 30/06/2021  Action by: Tony Leung |
| xxxxxx | xx/xx/xxxx  From xx:xx to xx:xx | xxxxx | xxxxx |  |  |  |
| xxxxxx | xx/xx/xxxx  From xx:xx to xx:xx | xxxxx | xxxxx |  |  |  |

<Provide the overall conclusion and recommendation of your performance test execution result>