*Simplicity into software testing*

**Performance Test Plan**

**Version 1.00**

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# Change Control

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| --- | --- | --- | --- |
| Description | Version | Date | Author |
| Initial Draft | 0.1 | 01-March-2011 | Pragmatic Test Labs |
|  |  |  |  |

# Definitions and Acronyms

Following definitions and acronyms are intended to aid communication with various stakeholders of the performance testing project. They may not reflect the standard definitions from the industry.

|  |  |
| --- | --- |
| Term | Description |
| Anticipate workload | Current workload \* 1.5 (50% increase) |
| Current production environment | Production environment at OMS |
| Endurance testing | Execution of performance testing over an extended period of time with anticipated production volumes. |
| Latency | Time it takes to execute a single web request. |
| Load testing | Type of performance testing to evaluate application’s behavior under anticipated production work load. |
| Metrics | Measurements obtained from executing the tests and presented on a commonly understood scale. |
| New production environment | New production environment at Telecommunication. |
| Performance tuning | Activities involved in identifying and fixing performance issues, and retesting. |
| QA | Quality Assurance |
| Smoke Testing | Initial run of performance tests verify if application can perform under normal load. |
| Spike testing | Type of performance testing where load is increased beyond anticipated production load for a shorter period of time. |
| Stress Testing | Type of performance test designed to evaluate application’s behavior under load beyond anticipated production work load. |
| Throughput | Number of requests handled per unit of time (e.g. Requests per second) |
| Workload | Workload is stimulus applied to the system to simulate actual usage pattern in regards to concurrency, data volumes, transaction mix. |

# Test Project Overview

It’s planned to move the current production environment to a new production environment. Various hardware and software versions, configurations are not comparable in current and new environment.

The project is focus on comparing the performance of application with respective to end user experience with current and new production environment.

# Test Objectives

This section describes the overall performance testing objectives. The objectives are derived from the customer request to **compare user experience under anticipated production workload against** [**new production**](#_Definitions_and_Acronyms) **environment**.

1. Compare responsiveness of current production system and proposed production system
2. Compare resource utilization of current product system and proposed production system.

# Out-of-scope Business Processes

This section outlines the scenarios not covered by performance testing.

1. Identify performance bottlenecks and provide/suggest solutions
2. Support [performance tuning](#_Definitions_and_Acronyms) effort
3. [Endurance testing](#_Definitions_and_Acronyms)
4. [Spike testing](#_Definitions_and_Acronyms)
5. Any other testing type not included in test objective section.

# Dependencies and Baseline Assumptions

This section outlines the tasks that must be completed and the conditions that believed to be true to start performance testing effectively.

1. Components to be tested shall be completely functional
2. Components to be tested shall be installed and configured environment represents the intended production system
3. Production Data repositories are available for testing
4. Performance Testing tools are installed and fully licensed to execute the testing
5. Resource monitors are started during test execution
6. Resource usage in customer and server environment are identical as testing is started.
7. Testing systems are not accessed during test execution

# Limitations and Risk

The identified limitations and Risks are documented here.

|  |  |
| --- | --- |
| Risk | Type |
| [Dependencies](#_Dependencies_and_Baseline) | HIGH |
| JMeter’s ability to handle HTTPS request in production | Medium |
|  |  |
|  |  |

# Tools Selection

Free and open source tools are selected to minimize the project cost. Following table list the proposed tools to be used for performance testing.

|  |  |  |
| --- | --- | --- |
| Tool | Version | Description |
| JMeter | 2.3.4 | For implementing performance testing |
| JRE | 1.6 | Java run time environment to run JMeter |
| PerfMon |  | For monitoring and logging resource utilization |
| MS XL |  | For analyzing test results and publishing reports |

# Pre-Performance Testing Actions

This section outlines the activities to perform before executing formal performance testing.

1. Install JRE and JMeter on test server.
2. Implement performance monitors on servers
3. Communicate all stakeholders testing schedules and ensure testing is not affected by any intruding activities.

# Performance Test Execution

This section explains the performance test execution process.

* Identify the performance test scenarios
* Identify the typical loads for each scenarios
* Implement tests using JMeter
* Synchronize time of test customer, current production servers and proposed production servers
* Smoke testing.
* Execute actual load scenarios with typical load conditions. Start resource monitors.
* Monitor and capture performance test results
* Analyze the test results and prepare test metrics
* Execute the tests again as required
* Publish the test results

# Deliverables

This section outlines the planned deliverables of performance testing.

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No | Name | Description | Responsibility |
| 1 | Performance Test Plan | This document | Pragmatic Testers |
| 2 | Performance Test Results | Raw data captured from performance testing. JMeter test results and resource usage logs. | Pragmatic Testers,  OMS Admin, Telecommunication Admin |
| 3 | Test metrics | Matrices with QA findings/comments | Pragmatic Testers |