Performance Testing is a software testing process used for testing the speed, response time, stability, reliability, scalability and resource usage of a software application under particular workload.

According to Dunn & Bradstreet, 59% of Fortune 500 companies experience an estimated 1.6 hours of downtime every week. Considering the average Fortune 500 company with a minimum of 10,000 employees is paying $56 per hour, the labor part of downtime costs for such an organization would be $896,000 weekly, translating into more than $46 million per year.

Only a 5-minute downtime of Google.com (19-Aug-13) is estimated to cost the search giant as much as $545,000.

It’s estimated that companies lost sales worth $1100 per second due to a recent Amazon Web Service Outage

Performance Testing Process

* Identify your testing environment
* Identify the performance acceptance criteria
* Plan & design performance tests
* Configuring the test environment
* Implement test design
* Run the tests
* Analyze, tune and retest

More:<https://www.softwaretestinghelp.com/introduction-to-performance-testing-loadrunner-training-tutorial-part-1/>

What you follow when Test Execution

The scenario is designed according to the Load Model in Controller or Performance Center but the initial tests are not executed with maximum users that are in the Load model.

Test Execution is done incrementally. For Example, If the maximum number of users is 100, the scenarios are first run with 10, 25, 50 users and so on, eventually moving on to 100 users.

Some of the best practices that help the Result Analysis process:

* A unique and meaningful name to every test result – this helps in understanding the purpose of the test.
* Include the following information in the test result summary:
* Reason for the failure/s
* Change in the performance of the application compared to the previous test run
* Changes made in the test from the point of application build or test environment.
* It’s a good practice to make a result summary after each test run so that analysis results are not compiled every time test results are referred.
* PT generally requires many test runs to reach the correct conclusion.
* It is good to have the following points in result summary:
* Purpose of test
* Number of virtual users
* Scenario summary
* Duration of test
* Throughput
* Graphs
* Graphs comparison
* Response Time
* Error occurred
* Recommendations

Performance Test Cases

* Verify response time is not more than 4 secs when 1000 users access the website simultaneously.
* Verify response time of the Application Under Load is within an acceptable range when the network connectivity is slow
* Check the maximum number of users that the application can handle before it crashes.
* Check database execution time when 500 records are read/written simultaneously.
* Check CPU and memory usage of the application and the database server under peak load conditions
* Verify response time of the application under low, normal, moderate and heavy load conditions

N.B: During the actual performance test execution, vague terms like acceptable range, heavy load, etc. are replaced by concrete numbers. Performance engineers set these numbers as per business requirements, and the technical landscape of the application.