A Sustainable Approach for analyzing load testing tools

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ABSTRACT*: Software testing is a process used to identify the correctness, completeness and quality of developed computer software. Although crucial to software quality and widely deployed by programmer and testers, software testing still remains an art, due to limited understanding of the principles of software. The objective of this research paper is to evaluate and analyze the performance of some testing tools and compare them to determine their effectiveness and reliability, used in software testing. In this research paper, two testing tools: WAPT and NEOLOAD are described, Which are implemented on a web application. WAPT is a load, stress testing tool that provides an easy to use & cost effective way to test any website. Whereas , the NEOLOAD is a tool that measures performance and behavior of the system under load. The performance of these testing tools is evaluated and compared and their results will help in adoption and usage of these tools.*

Keywords: — Load testing, WAPT, NEOLOAD, web application, quality

1. INTRODUCTION

Software testing is a process used to identify the correctness, completeness and quality of developed computer software. Testing identifies faults, whose removal increases the software quality by increasing the software's potential reliability.

It includes a set of activities conducted with the intent of finding errors in software so that it could be corrected before the product is released to the end process. In simple words software testing is an activity to check whether the actual results match the expected results & to ensure that the software system is defect free. Software testing is important because it represents approximately 50% of the software development budget for software projects is spent on testing.

2. OBJECTIVE

The objective of this research paper is to evaluate the performance of some specific testing tools and compare them on the basis of certain attributes. In recent years, various tools and techniques are developed for measurement and evaluation of quality of service of web application. These tools facilitate in quality of service analysis and are helpful in evaluation of service performance in real time network.

3. Related work

Nianmin yao, feng gao, shaobin cai & wenbin yao proposed a new method to test the performance of network storage, which easily can generate requests that exceed the maximum loading of storage devices. Pu yunning and xu mingna analyzed the performance testing criteria, including response time, concurrency users, throughout and performance counter. With the load runner and test director testing tools, a load testing scheme based on an online examination system was designed. Zhang Hui-li, Zhang Shu, Li Xiao-jie, Zhang Pie, Zhengzhou and Liu Shao-bo implemented load testing for the e-commerce application system by means of load runner testing tool,

analyzed results, and improved the performance of the system based on the test results. Osama Hamed and Nedal Kafri proposed a performance testing approach for web based aapplication early in the development process. They compared performance in terms of response time for two web application architectures. Sneha khoria and pragati upadhyay analyzed the performance of some specific testing tools and compared them to determine their usability and effectiveness in software testing. The paper described two testing tools: WAPT and NEOLOAD, which are implemented on a web application. The performance of these testing tools were evaluated and compared. Tools were evaluated by collecting the sample web services and collecting the test results.

4. Proposed work

In this work, two testing tools WAPT and NEOLOAD are taken, which are implemented on a web application. WAPT is a load, stress and performance testing tools, used for website and web application. NEOLOAD is another load testing tool for web application, which is used for testing web application, web services, flex application oracle forms

and silver light applications. The web browser can be used to record the scripts which are easy to use and record. The performance of these testing tools have been evaluated and compared and results have been presented and discussed.

5. Software testing tools

WAPT:

WAPT is a load & stress testing tool that provides an easy to use & cost effective way to test any website including business application, mobile sites, web portal's etc. with WAPT, we can test and analyze the performance characteristics and bottlenecks of web site under various load conditions. WAPT is used to test web application and web related interfaces. These tools are used for load & stress testing of web application.

Features of WAPT:

- Accurate simulation of real user activity
- Different types of users in one test
- Testing of dynamic web applications
- Testing of HTTPS/SSL content

- Descriptive test reports and graphs

NEOLOAD:

Load testing tool for web application from Neotys with clear and intuitive graphical interface, no scripting/fast learning curve, clear 7 comprehensive reports & test results can design complex scenarios to handle real world applications features include data replacement, data extraction, system monitors, SSL recording, PDF & HTML reporting, IP spoofing, and more. Tool that measures performance and behavior of the system under load. It is used for testing web application, web services, flex application oracle forms and silver light applications. It uses java script for script enhancements.

Features of NEOLOAD

- Clear and intuitive graphical interface
- Clear and comprehensive reports and test results.
- Allows advanced scenarios to handle real world applications
- Get statistics from your servers

6. METHODOLOGY

In this research paper, we are selecting two testing tools and comparing them on the basis of some different parameters.

- Firstly, choosing two testing tools (WAPT and NEOLOAD)
- Then analysis the various features of these tools and gathering results.
- Drawing the conclusion and inferences.

Selected tools:

The testing tools chosen for comparison are WAPT and NEOLOAD. Many other tools could also be selected for comparison. But because of the easy to use and initialization these tools have been selected among them. The first tool selected is WAPT. This tool is selected because it is easy to use and cost effective. It can analyze the performance characteristics and bottlenecks of web site under various load conditions.

And the second tool is NEOLOAD. The reason to select this tool is its wide use for web applications. It allows advanced scenarios to handle real world applications.

7. Testing approach

In this paper, the performance of tools will be evaluated for their support for web-based testing. first of all, application was manually tested and each feature was reviewed for their working. In the testing approach, application was tested on each tool, and execution of each feature was recorded manually so that test could easily be played over and test results could be evaluated whether they are passed or failed. we have applied some test cases on each tool. The table below describes the test cases.

Test cases executed on Wapt tool

test cases for wapt tool	Description
Data driven test	This test case verifies the data variables by passing the various values.

Error report graph	This test case verifies the various forms of error report generation feature of the tool.

of graphs	
Error report graph	Pass
Creating and manipulating the profiles of virtual users	Pass

Test cases executed on neoload tool

Test cases for neoload tool	Description
Multiplatform	This feature defines that this tool supports windows, linux, etc
Graphical interface	This test case verifies that the data presents clear and intuitive graphical interface.
Curve	This test case defines the fast learning curve.

| test cases for neoload	Results
Verify login	Pass
Data binding	Pass
Renaming repository	Pass
Verifying hyperlinks	Pass

When the test cases were executed, the results were gathered for each test case. Below are images of each test case, highlighting the features that have been considered.
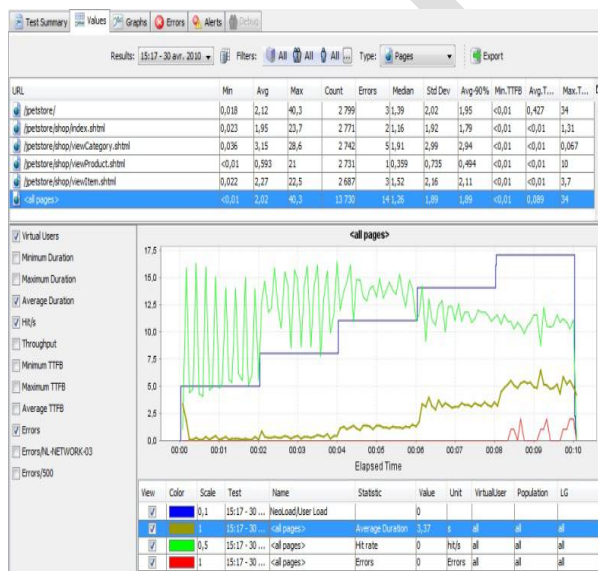
8. Test results

The results of test cases executed on each tool WAPT and NEOLOAD respectively.

test cases for wapt tool	Results
Data driven test	Pass
Different forms	Pass

Images of test case executed on WAPT
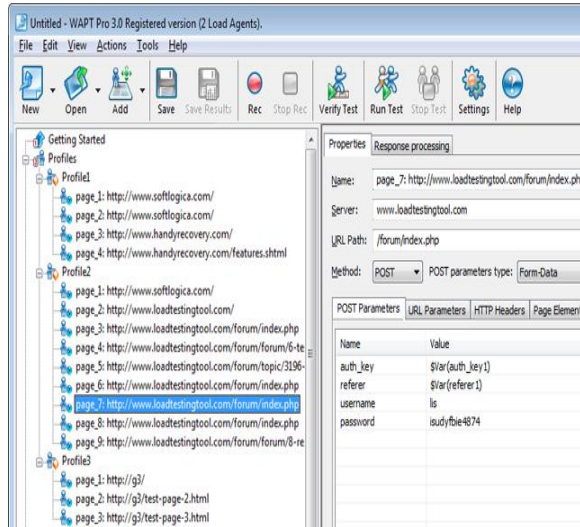
Images of test case executed on NEOLOAD

9. Comparative analysis of tools

The results were gathered and analyzed. In this section, the two tools have been tested, evaluated and compared to each other. Below table shows the results via a ranking from 1 through 5.

Features	WAPT	NEOLOAD
Web testing	4	5
Image testing	3	5
Object testing	2	4
Object identity testing	5	5

10.   Conclusion and future work

Software testing is both a discipline and a process. It is a separate discipline from software development. In this research, we have referred two testing tools WAPT and NEOLOAD, because of their individual usage in web testing. After analyzing the performance of these testing tools, we can conclude that NEOLOAD is the best tool for web

application, because of its object mapping feature. Whereas WAPT is the best tools for web applications where the load, stress and performance testing is required.

This research work can be further enhanced by including more testing tools for comparison so that we could find more suitable testing tools for testing the application software. Further, some different parameters can be used for performance evaluation so that comparison could be more realistic and reliable.

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