

e-Business Reliability with Web Performance Management

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1. Introduction

This abstract presents an effective Web Performance Management (WPM) system model that leads e-Business to superior end-to-end Infrastructure management for reliable quality. Such a model is presented here to show how it may be used accurately, visibly, and effectively.

This study has addressed the impact of software testing on the modeling of WPM system and focuses to incorporate the automated testing techniques into WPM system modeling.

2. Background

A variety of types of knowledge of performance use an existing approach for managing nonfunctional requirements (NFRs) [5]. This developer directed approach allows customized solutions to be built, taking into account the characteristics of the particular domain [2]. But recently, many papers discussed in general, have more confidence towards measuring software reliability with more software tests [1, 3].

This paper proposes a WPM system model, which develops an efficient reliability testing process to improve the reliability of e-business with detailed, practical advice on web system measurement and management. The experiment has shown strong evidence that it is no longer accurate to obtain analysis and measurements of the systems without test automation [1].

In particular, this paper demonstrates how to incorporate the automated testing techniques into e-Business Reliability with high performance.

3. Issues

The increasing amount of Internet contents and inconsistencies in the Internet infrastructure cause bottlenecks, traffic delays, and ultimately, frustration to Web site visitors. How to make the testing process be more efficient and easier to manage is critical for the WPM to ensure e-Business reliability. In modern society, computer controlled and computer-embedded systems

heavily depend on the correct performance of software [3]. Even in the early days, performance was a serious concern for first-generation Java virtual machines (JVMs). Java performance has been a hot issue ever since the arrival of Java in the mid 1990s [4].

[4] Gives the importance of performance to the e-Business reliability, but it is somewhat surprising that not many books or articles have been dedicated to this important topic.

4. WPM system modeling

The performance characteristics (such as Hits per Second or Throughput, Running users, Transaction Response Time-Distribution, and Transaction Response Time-Under Load) are integral parts of quality attribute of a software system.

Designing and managing an e-Business to ensure reliability with high performance despite peak loads and Internet problems can be a challenge [2].

Our approach is building an effective model of e-Business reliability with WPM system throughout following Five-step load-test process:

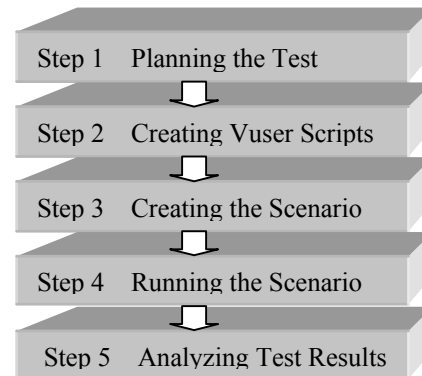


Figure 1. Five-step load-test process

4.1 Step 1: Load test planning:

Developing a comprehensive test plan is a key to successful load testing. The following four steps outline the load test planning process: Analyzing

the Application; Defining Testing Objectives; Planning Testing Tool Implementation; Examining Load Testing Objective.

4.2 Step 2: Generate Vuser Scripts:

Creating the Vuser scripts required for a scenario is part of the load testing process. The load-testing tool replaces human users with virtual users or Vusers. The actions that a Vuser performs during the scenario are described in a Vuser script, which includes functions that measure and record the performance of the server during the scenario.

4.3 Step 3: Create a scenario:

The scenario contains lists of hosts, Vusers, Vuser

scripts, transactions, and rendezvous points.

4.4 Step 4: Executing a Scenario:

When run a scenario, the tool generates load on the application and measures the system's performance.

4.5 Step 5: Analyzing Test Results:

After running a scenario, we can use the tool's graphs and reports to analyze the performance of the application and the systems. For example, the following Figure 2 provides information about transactions and Vusers. We can study individual graphs and compare other graphs from several scenarios using Cross-Scenario analysis.

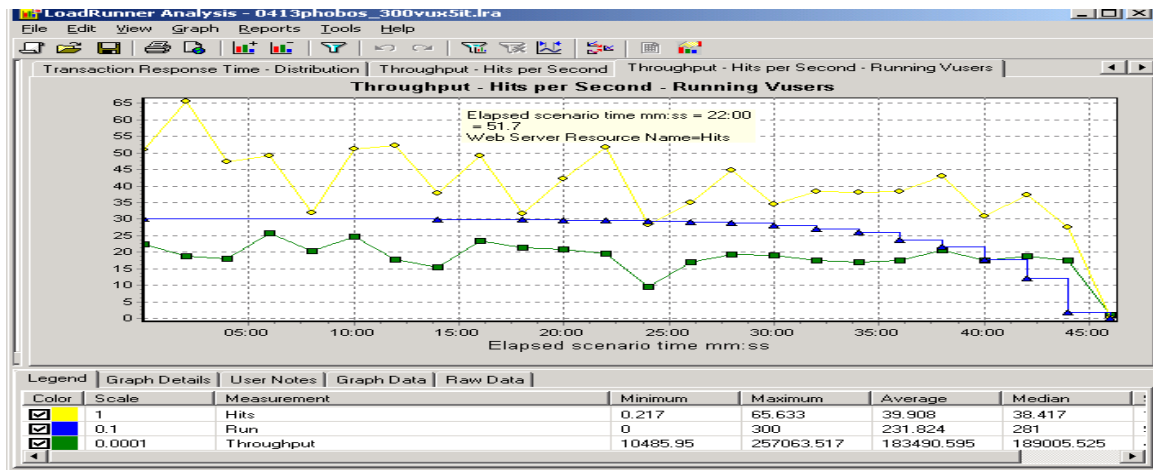


Figure 2. The Cross Graph View

5. Conclusions

Modeling of the WPM system is a key leads to be a successful quality e-business. Once the experience with five-step load-test process is assessed, the confidence in measured software reliability with more software tests shall be gained.

References

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