TJHSST Computer Systems Lab Senior Research Project Automated System Testing 2008-2009

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Abstract

Many companies require testing for various project. This process can take up to many hours of manual labor. This project sets up a system in which one client system can test multiple applications on many server systems. In this project, three systems were used. The one client system implements various automation tools to accomplish the task. The practical use of this project is to reduce the time spent on testing. The project will show that the manuel testing that originally takes hours to test on the two other systems can be reduced to just minutes using one system.

Keywords: automation, client, server

1 Introduction

1.1 Scope of Study

This project uses a few important applications. TightVNC, VNCRobot, and STAF/STAX play very key roles within the project. I have set up the TightVNC, which will create either a server or a client onto the system. The server will make available the server's desktop for the client machine. When the client opens up a viewer, the client will be able to access all of the servers

that it is connected to. This lets the VNCRobot, which is an automation tool used to automate simple actions, control the server systems.

Although the STAF/STAX framework can hold many systems, this project will be limited to a maximum of three systems. This is to not overwhelm the project as setting up systems may take a long time. In addition, because the ability to automate on different operating systems, only three would be needed to show variety.

1.2 Expected results

The project is expected to result in a computer that will be able to control a system of computers. Since the ultimate purpose of this project is to reduce testing time, the project will have applications running on some systems but automated by the client computer. The testing time for manual testing can be shown to take a very long time. After that, the client will test all of the systems at the same time, showing a major reduction in testing time. This idea can be presented in the data showing the effectivness of automation.

This project may be later extended to a large-scale system. If the client were to control a hundred servers, instead of two, it may change the outcome of the project. Therefore, the testing of systems through automation can prove to have even more purposes.

2 Background and review of current literature and research

Companies have been trying to impletment automated testing with their company for years. Many common problems that halt the continuation of this is a lack of knowledge in the area and the long time that it takes to set up automation. Years ago, automated testing was not practical for use. Currently, there are many tools for automation that makes automated system testing not only simple but extremely quicker to set up. The increased knowledge and simplicity of the automation process in key in automated system testing.

3 Procedures and Methodology

Various applications will be used to automate the systems. In addition, there will be applications that will be tested to prove that the automation is working correctly. For example, SeaClear, which is a navigation tool, will be used. There are many drop down menus and well as places where values can be input. For example, known valid values will be plugged in. Later, known invalid values will be plugged in to see if an error menu will appear. After testing this applications manuelly, the client system will then attempt to recreate the process at a faster speed. Also, the project will be tested by observing if the different systems interact correctly with each other. If the applications can not even be tested, it means the framework was not correctly set up.

The client system will use TightVNC to connect to the server systems. This will create a relationship between one client and one server. STAF/STAX will be used to connect the client to multiple servers and create the system. Later, VNCRobot will recieve the orders from STAF/STAX and proceed with the testing. VNCRobot will automatically access TightVNC and the server systems. The SeaClear application will be tested and the results will be sent back to the client. The operator, will then be able to view the results within minutes of starting the testing.

The project's accuracy will be tested by first manually testing the application. After the results have been recorded, the client will attempt to recreate teh results using the same testing process. If the results match, the project was successful. This process will be repeated with different types of inputs, such as valid verses invalid inputs, to show that any input will produce correct results.

4 Expected Results

This project is expected to create a system in which applications on many servers can be tested through the use of one client. Although this can be done manually, the project is expected to reduce testing time from hours to minutes. In addition, the automation of the testing will not compromise the accuracy of the testing in any way.

This project can be expanded by the use of more servers. If the project were to be put on a grander scale, nothing should change but there is a

possiblity.

5 Referances

Ramamoorthy, C., Ho, S. (1975). Testing Large Sotfware with Automated Software Evaluation Systems. Retrieved September 30, 2008

Ran, L., Dyreson, C., Andrews, A., Bryce, R., Mallery, C. (2006, May 24). Building test cases and oracles to automate the testing of web database applications. Retrieved October 28, 2008