Softsmith
Quality Enterprise Solutions

Case Study

Test Consulting Services

To

Microsoft Solutions Group,
Satyam Computer Services Ltd, Chennai, India.

1 Client Overview

Satyam Computer Services Ltd (**SCSL**) is the 4th IT major in India in the IT services arena. Microsoft Solutions Group (**MSG**) of SCSL is a focused unit that concentrates on cutting-edge Microsoft technologies and enables all other groups of SCSL in Microsoft capabilities. The end-client list of MSG includes Microsoft Corporation, Du Pont, Indian Oil Corporation, etc.

2 Project Overview

The product is an **FTP** adapter to Microsoft **BizTalk** Server. BizTalk does communicate only on Microsoft platform for document or business transaction exchanges. It does not communicate with applications on other platforms such as UNIX or IBM mainframes. The purpose of this adapter is to engage FTP to BizTalk server so that it can communicate and exchange business transaction files with applications that are running on other platforms in real-time.

* **Due to NDA with SCSL, end-client's name, product architecture, product code, technology and size of the project are not revealed**.

3 Engagement Model

Softsmith Infotech got engaged with MSG for the testing activities of this product.

3.1 Test Strategy and Planning

Initially the Test Architect and Test Lead from Softsmith participated in the functional understanding of the product to know the product and get to know the magnitude of the product features.
The test architect and test lead subsequently prepared a master test plan to cover all aspects of the testing activities. This basically involves scope definition for testing, roles and responsibilities assignment, assumptions evaluation, risk assessment, test templates definition, defect arbitration procedure, escalation mechanism, release criteria for prebeta and beta releases for the product. This is subsequently reviewed by MSG development lead and the end client.
The testing scope involved a complex test automation procedure. The end client wished to do test automation, but did not want to use any of the third party testing tools, but wanted to automate by writing test scripts using C# language. For this the end-client provided one of their existing test driver suite with little documentation. Softsmith test architect analyzed the existing test driver suite and its functional strengths and clearly documented the guidelines to use that suite.
At this point the test architect disengaged from the project temporarily and the Softsmith test lead assumed full control of the project test activities.

3.2 Test Case Preparation

The testers for this project are employees of MSG. These testers prepared the test scenarios document and test case document. The test lead reviewed these documents and the second level review is done by the test architect.
The test lead coordinated with the onsite person who was client-facing for all test artifact approvals from the client. The test lead participated in tele-conference calls with the customer on a weekly basis.

3.3 Test Automation

The test automation is achieved in a gray box mode. The application exposed certain APIs to perform every packet of functional aspects. To test those atomic level functional aspects, test stubs are coded to call those APIs from the stubs with parameters coming from an XML file. Object Oriented approach is followed for writing test scripts.
For every test case, there will be a separate class and methods are written to instantiate a particular object, retrieving the parameters from XML input file, calling the respective application API using those parameters, trapping the return codes and checking for expected values and then logging the results in another XML log file. These individual classes for every test case, will be finally placed in a test suite and the test driver given by the client is used to run all tests one by one in a sequential fashion.
For testing the GUI functionality of the product, same kind of test scripts are written to utilize the accessibility feature to access the GUI controls and programmatically manipulate those controls.
Softsmith test lead reviewed the test scripts against the test cases and test architect performed the 2nd level review of the test scripts.

3.4 Test Execution

The test lead ensured that the test bed is setup at client site by the administrators of the client at onsite and carried out mock test runs on intermediate builds. These builds are not taken into account for metrics collection for the project, but for ensuring that the test bed is ready to use.
Once the build is dropped to the test team, the test lead installed it on the test bed at onsite and the test team performed the installation tests and build verification tests. Then the test team carried out the rest of the build compliance tests. The test architect was present to directly oversee the first build first day's test activities.
All defects are reported by the testers in the client's central defect reporting system over the web, and all those defects are reviewed by the test lead. The test lead participated on a daily defect arbitration meeting at the end of the day to assign the correct severity to bugs and getting a concurrence from the development team for bug closure.

3.5 Performance Tests

To ensure the performance of the adapter when thousands of files are to be FTPed by the adapter, a separate **RequestGen** code is written to create more files at a specified size and frequency on the staging area from which the FTP will happen by the adapter. Another **Verifier** program is written to check whether the same files sent continuously reach the target end intact.
Also, files of huge size i.e. 1 GB were processed by the product. During the tests, using performance monitor, the CPU, Memory, Disk and Network usage are monitored and the graphs are provided to the development team.

4 Rollout Mechanism

After 6 to 7 test rounds, Softsmith test lead performed handholding of MSG test lead for a few test rounds and provided a knowledge download for a week. All test documents were explained along with a hand-over document.

5 Accomplishments

Since the tests are automated, the testing cycle for every build was reduced to just 2 days. Had it been not automated, it would have taken minimum two weeks for one round of testing.
Due to 2 levels of reviews, all test artifacts are signed-off by the customer right on the first version. Since the tests are automated, running them on multiple target platforms took no time and multiple test beds are established to shrink the testing cycle. First sign-off of the release of the partial product to the internal team of the client is achieved on time.

6 Difficulties Faced

The security measures to connect to the test bed from offshore to onsite were too tight and sometimes if the onsite coordinator is absent, it posed delays of a few hours. Some of the design document sections were outdated and the test scripts are based on those details and hence in the first round, some bugs reported were voided as features in the arbitration meeting.