End to End Testing of a Client-Server Application

Abstract
The main objective of developing a Client Server Application in .NET was to give an intuitive user interface and better performance. The existing desktop client application was developed using .Net 1.1 framework which was converted to .Net 2.0 for optimizing the performance. The Server application was developed from scratch in .Net 2.0. The web service was used for data mirroring between different server applications. The client was expecting the application to be robust and scalable to support multiple concurrent users accessing the core scenarios of the application. Testing involved functional, integrated, regression, usability, compatibility along with basic security check and performance testing. Client got the core benefits from Gateway’s solution such as risk is identified and reduced in the primary stages of development instead of the final stages.
Client Profile
The client is a leading provider of product based services like Office Management suite and Mailing and marketing servers across the US. The application under test is highly useful to various clients in service industry or business and trade sectors.

Business Need
The main objective of developing a Client Server Application in .NET was to give an intuitive user interface and better performance. The existing desktop client application was developed using .NET 1.1 framework which was converted to .NET 2.0 for optimizing the performance. The Server application was developed from scratch in .NET 2.0. The web service was used for data mirroring between different server applications.

The client was expecting the application to be robust and scalable enough to support multiple concurrent users accessing the core scenarios of the application.

The client was also expecting the new .NET application to be thoroughly tested for all the functionalities implemented in the project along with the performance testing. Testing was done against the existing client desktop application [For client part only], requirement specifications and design documents approved by the client. The functional verification for client application also had to include the matching of functionalities to the existing client desktop application.

The client aimed to implement effective offshore Quality Assurance for the product.

Challenges
- To complete the testing within a short span of time including rapid ramp up during the final release.
- Number of modules with complex functionalities to be tested with limited understanding provided by the client/development team.
- To find out the key scenarios for the performance testing such that it covers the complete application.

Technology
- .NET 2.0
- MS SQL Server 2005
- Mantis for Issue Tracking
- WAPT for Performance Testing

Industry
Office Management application, Email Marketing Tool, Business Traders application
Gateway’s Solution

Team Gateway was chosen as an ideal partner, to implement effective offshore Quality Assurance for the product and carry out the complete end to end testing of the application by following manual testing standards. The key challenge was to test the application in a short span of time.

To get the functional understanding of client application dedicated QA resource explored the existing client desktop application and study the requirement specifications. To get in-depth functional understanding of the complex modules in server application, the communication was done via MSN on regular basis with the client representatives.

Functional requirement and business rules were understood by client interactions, specification documentation and exploration of the existing desktop application.

In the initial phase of the project Knowledge Transfer and Exploration of existing desktop application was carried out to get more functional understanding. The test cases were written in the initial phase for client and server application. Over a period of time the test cases were updated with respect to the change requests incorporated in the project.

From time to time, these test cases were reviewed and approved by the client. The crucial and complex functionalities of the application were tested against the approved test cases. Defects/issues were reported in Mantis bug tracking tool which were reported to client and development team for further actions. The defects/issues were closed after they were resolved by the development team and by performing a round of regression testing.

Testing involved functional, integrated, regression, usability, compatibility along with basic security check and performance testing.

Benefits

- Risk is identified and reduced in the primary stages of development instead of the final stages.
- Findings of defects and functional gaps in the development life cycle and improvement suggested in the process.
- Due to early involvement of QA member quality of application was improved throughout the application lifecycle.
- The release dates were predicted more accurately throughout the project.
Performance testing was done using the automated testing tool WAPT 3.0. Key Scenarios of the application, which were processing intensive modules, were picked up as load testing scenarios. These scenarios were then recorded, optimized and executed with a specific number of virtual users accessing the system.

The reports were analyzed and findings were reported to the client for further actions. Load testing was carried out till the point where application performance was found satisfactory.

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**Gateway TechnoLabs Pvt. Ltd.**
Head Office: B/81, Corporate House, Judges Bunglow Road, Bodakdev, Ahmedabad - 380 054 INDIA.
Tel: +91 (79) 2685 2554 / 55 / 56 Fax: +91 (79) 2685 8591
Web: [www.gatewaytechnolabs.com](http://www.gatewaytechnolabs.com) [www.offshoretestingservices.com](http://www.offshoretestingservices.com)
E-mail: qa@gatewaytechnolabs.com