

## **Performance Testing of an Airline Distribution System Using Open Source Tool**

### ***The Company***

The client is one of the India's premier Airline Company which has over 300 flights a day, spanning the length and breadth of the country while connecting 61 destinations. Client has the largest network in India and is presently operating a modern fleet of 40 aircraft.

### ***Business Need***

The client developed an online application which enabled small & medium-size airlines leverage the power of e-Commerce and at the same time reduce distribution costs significantly, by providing booking interfaces to travel agencies and customers.

Customer need,

- Test application performance for 10,000 concurrent users
- Find Application errors

### ***Application Technology***

- **Front End:** ASP
- **Database:** SQL Server
- **Application Server:** IIS 5.0
- **Load Balancer:** HCL
- **Load Testing Tool:** OpenSTA 1.4.3

### ***Challenges***

- **Use of Free Tool**

Due to budgetary constraints client was reluctant to use free (open source tool) to test their application. They wanted to use free tool since the number of users for performance testing was huge i.e. 10,000. To test such a huge load with paid tool was not feasible.

- **Identify setup requirements (client machines)**

To fire such a huge a load of 10,000 concurrent users through an open source tool was a big challenge. For the performance testing identifying the test bed i.e. the number of client machines with minimum configuration to fire such a huge load was itself a challenge.

- **Analyzing OpenSTA results**

The result logs which are generated by OpenSTA in are huge in size. To analyze the results from .csv files with millions of records was time consuming and tedious job.

To save time and lot of manual efforts we developed our proprietary web based application for analyzing the OpenSTA logs.

### ***Key Success***

- **Identification of Open Source Tool and Test Bed**

Since client was reluctant to use open source tool, OpenSTA was used and scenarios were executed using the same. To load test an application for such a huge load (10,000 users) the number of client machines required to fire such a heavy load was identified with minimum configuration.

- **Cost Effective and Time Saving Solution**

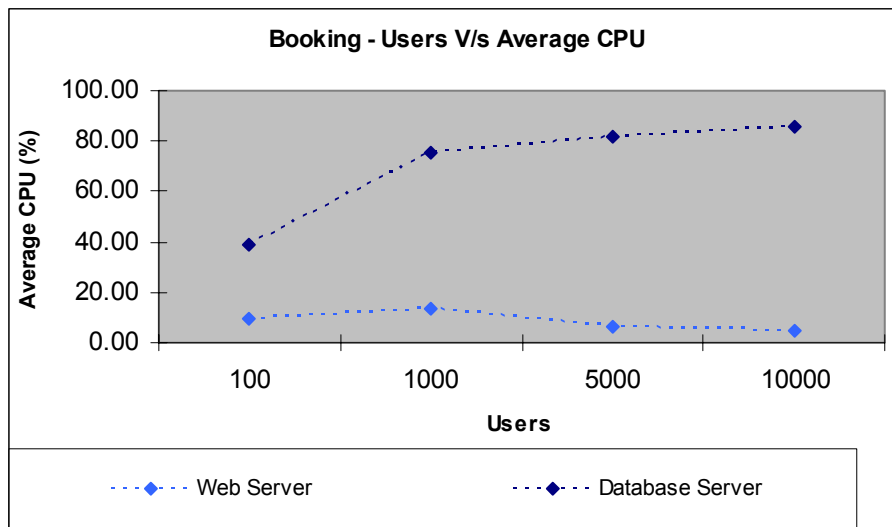
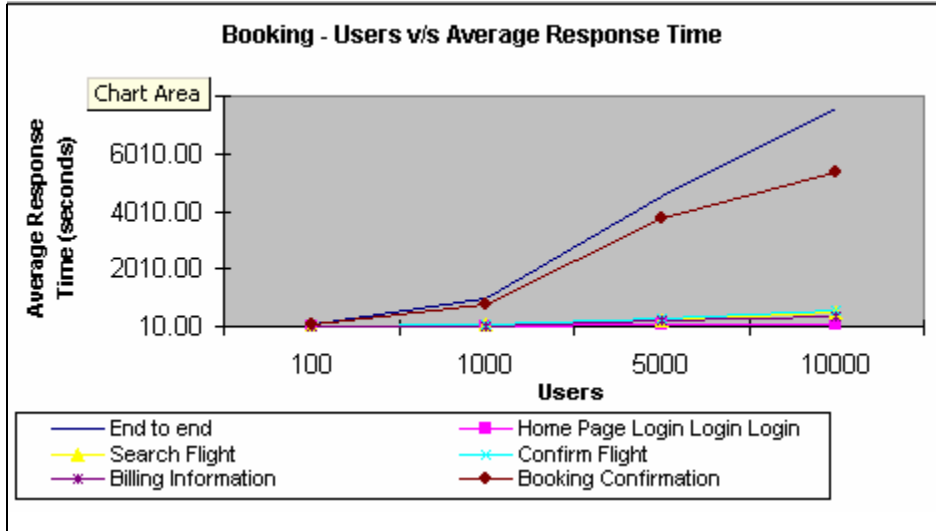
An Open Source tool was used to meet the client requirement thus saving the licensing cost of the paid tool.

A web based application was developed to analyze the OpenSTA results thus saving time and efforts.

- **Identification of Bottlenecks in the Application**

Using an open source tool OpenSTA application bottlenecks were identified and suggestions for application tuning were recommended to the client.

**Result Graphs**



## **Performance Testing of Online Poker Game**

### ***The Company***

The client is one of the world's largest gaming company providing customers worldwide with gaming entertainment of premium quality and at exceptionally good value.

### ***Business Need***

Customer wanted to test the performance and benchmark the poker application for,

- 3000 concurrent users by simulating real time user action in the game

### ***Application Technology***

- **Front End:** C++ Thin Client
- **Back End:** MySQL
- **Load Testing Tool:** LoadRunner 8.0

### ***Challenges***

- **Data Capturing**

To capture the real time data transferred in messages which were in the form of ping pong and of asynchronous nature. These messages were random and had no fix intervals. So to capture such data in the script was a difficult task.

- **Simulation of real time user actions**

The Game was played across multiple tables with user validation on each table as per the game rules. Each table had 9 players playing the game.

To simulate these real time user actions across these tables using LoadRunner was a difficult task.

### ***Key Success***

- **Saving Cost of LoadRunner License**

A single LoadRunner script was written to simulate the actions on a table for 9 players. To test the performance of the game for 3000 concurrent users, LoadRunner license for 223 users was purchased thus saving cost of LoadRunner license for 3000 users.

- **Identifying error in application logic**

Under heavy load conditions application logic failure was identified.

## **Load Testing of an Online Printing Application**

### ***The Company***

Customer is the world's leading provider of document solutions and business services. Customer offers access to copying and digital printing, professional finishing, document creation, Internet access, computer rentals, videoconferencing, signs and graphics, notary, direct mail, Web-based printing.

### ***Business Need***

Customer wanted to test the performance of the their website,

- Number of user supported,
- Validate onsite – offshore mechanism,
- Identify Application Bottlenecks

### ***Application Technology***

- **Front End:** JSP
- **Back End:** Oracle
- **Application Server:** WebLogic
- **Load Testing Tool:** OpenSTA 1.4.3 and Jmeter

### ***Challenges***

- **Execution of scenarios using a Hybrid model**

Due to application functionality OpenSTA was not suitable for some scenarios. In such cases Jmeter was used. Execution of scenarios using 2 open source tools at the same time was a challenge.

- **Onsite – Offshore execution**

The actual setup was located onsite and execution was to be done in that set up. Validation of execution in such setup was a difficult task.

### ***Key Success***

- **Proving Onsite – Offshore execution mechanism**

The actual load testing setup was located at onsite and the testing team was at offshore. The load testing was to be carried in onsite setup. The offshore team carried load testing using remote connectivity to onsite setup via VPN. Thus the onsite offshore execution mechanism was proved.

- **Server Sizing**

After analyzing execution results on the production environment, we suggested the future server requirement to accommodate a huge load.

### **Bottleneck Identification of a Messaging Service**

#### ***The Company***

The client is a part of the group of one of the world's largest financial service organizations. Headquartered in London, the clientele group network is spread across 9,500 offices in 76 countries with a customer base of 125 million.

#### ***Business Need***

The client had developed a Telegraphic Processing (TP) System which was the Group's centralized message store-and-forward application with external payment gateways to SWIFT, SPEEDLINK and Telex. TP was meant to send and receive messages to and from internal and external applications, irrespective of the protocols and formats that these systems would support.

Customer wanted,

- Benchmarking and bottleneck identification of TP application.

### ***Application Technology***

- **Back End:** Oracle
- **Application Server:** WebSphere

### **Challenges**

- **No GUI**

Application was developed to process about half a million messages per day. Through load testing tool it was not possible to generate such a huge load and also there was no GUI was available. To overcome this problem proprietary simulator programs were developed to generate desired load.

- **Generating 1.5 million messages through the simulator**

Generating such a heavy load of 1.5 million messages from the simulator was itself a challenge. A thorough testing of the simulator was done to generate a heavy load.

### **Key Success**

- **Bottleneck Identification and Server Tuning**

Bottlenecks were identified in Java components. To increase the performance of the application suggestions for tuning of WebSphere were recommended to the customer and were implemented. The tuning suggestions helped to increase the performance of TP in terms of the messages sent and received.