Chapter 1

Web-Based Systems and Performance Testing

For many years, the World Wide Web (Web) functioned quite well without any concern about the quality of performance. The designers of the Web page, as well as the users were not much worried about the performance attributes. The Web, in the initial stages of development, was primarily meant to be an information provider rather than a medium to transact business, into which it has grown. The expectations from the users were also limited only to seek the information available on the Web. Thanks to the ever growing population of Web surfers (now in the millions), information found on the Web underwent a dimensional change in terms of nature, content, and depth.

The emergence of portals providing extensive, as well as intensive information on desired subjects transformed the attitude of users of the Web. They are interested in inquiring about a subject and, based on replies to such queries, make decisions affecting their careers, businesses, and the quality of their life. The advent of electronic commerce (e-commerce) (see Ecommerce definition, 2003) has further enhanced user Web interface, as it seeks to redefine business transactions hitherto carried out between business to business (B2B) (see Varon, 2004) and business to customer (B2C) organizations (see Patton, 2004). Perhaps it may even reach a stage where all the daily chores of an individual may be guided by a Web-based system.

Today, Web-based transactions manifest in different forms. They include, among other things, surfing the news portal for latest events, e-buying a product in a shopping mall, reserving an airticket online at a competitive price, or even participating in an e-auctioning program. In all these transactions, irrespective of users’ online objectives, the Web users expect not only accuracy but also speed in executing them. That is to say, the
customer loyalty to a Web site greatly depends on these two attributes, speed and accuracy. If the Web site design sacrifices speed for accuracy or vice versa, the users of such Web site lose interest in it and seek greener pastures. Thus, in order to retain its existing customers and also add new customers to it, the quality of performance of the Web site must be ensured, apart from accuracy in terms of speed of response and consistency in behavior. Above all, the user must be privileged to access the Web site at any time of the day throughout the year.

Perhaps, no other professional is better privileged than a software professional in appreciating the performance of Web sites, both from user and designer perspectives. From the user perspective, the parameters for evaluating the performance of the Web site are only Web site availability and response time. Factors such as server outages or slow pages have no significance in the mind of the user, even if the person happens to be a software professional. On the other hand, the same person as a Web master expects the server to exhibit high throughput with minimum resource utilization. To generalize, performance of Web-based systems is seen as a thorough combination of 24×7 (24 hours in a day times 7 days in a week) Web site availability, low response time, high throughput, and minimum resource utilization. This book discusses the importance of the performance of Web applications and how to conduct performance testing (PT) efficiently and analyze results for possible bottlenecks.

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**Web Systems and Poor Performance**

From users’ perspectives, as said earlier, the performance of Web systems is seen only as a thorough combination of 24×7 Web site availability, low response time, high throughput, and minimum resource utilization at client side. In such a situation, it is worthwhile to discuss the typical reactions of the user for the poor performance variation of the Web site.

**How Web Users React on Web Application’s Poor Performance**

The immediate reaction of the user to server outages or slow pages on the Web is the feeling of frustration. Of course, the level of frustration depends mainly on the user’s psychology and may manifest into:

- Temporarily stop accessing the Web page and try after a lapse of time;
- Abandon the site for some days (in terms of days or months and rarely years);
- Not to return to the site forever (sounds a bit unrealistic, but possibilities cannot be ignored);
- Discourage others from accessing the Web site.
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