



CHAPTER ELEVEN

Managing Web Site Performance and Reliability

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An organization's e-commerce strategies either represent their entire existence for an Internet-only business or a significant investment by a traditional business. Competition on the Internet has resulted in many sites where a shopper can find the same goods and services. The differentiator for the market leader in a particular e-business is a positive shopping experience for the customer, which includes providing a reliable and high-performance Web site. This chapter describes a number of approaches to building reliable and high-performance Web sites.

INTRODUCTION

The business model of most organizations has seen a dramatic change in the last five years. Slightly more than five years ago the Internet did not allow any commercial business activity. The purpose of the Internet was for sharing information in a non-commercial environment. EPayNews.com (2000) shows the estimated revenues for US business-to-business (B2B) e-commerce goods for 1999 to be \$43 billion according to Forrester Research, and it is expected to grow to \$1.3 trillion by 2003. Revenues for US business-to-consumer (B2C) e-commerce goods for 1999 were estimated to be \$8 billion and are expected to grow to \$108 billion by 2003. The arrival of such a new paradigm for conducting business is resulting in new companies being formed to exploit this new economy model and established businesses scrambling to change their business model to compete in this new marketplace. E-commerce strategies for today's businesses either represent their entire existence for an Internet-only business or a significant investment by a traditional business.

Competition on the Internet has resulted in many sites where a shopper can find the same goods and services. Competition also has resulted in comparable pricing

from the many sites. The differentiator for the market leader in a particular e-business is a positive shopping experience for the customer. Performance, availability and security are important characteristics in providing a positive shopping experience. The Graphics, Visualization & Usability (GVU) Center at Georgia Tech (1998) has found that the most frequently cited problem with the Internet is that it takes too long to view/download pages. The responsiveness of the Web site may determine whether a potential customer continues to do business or goes elsewhere.

Likewise, the strategy for putting together a Web site also has seen dramatic changes. From an approach as simple as taking a discarded server and running an open source version of a Web server application, today's large commercial Web sites have arrays of servers distributed around the world.

The traffic load of a popular e-commerce site increases by at least 50% on most weekends. In order to respond to this weekend increase, the Web master must increase the server capacity by adding additional servers to the Web site. Modern Internet traffic management techniques can add more servers automatically. It is very important in managing a commercial Web site that performance is managed proactively.

With the rapid adoption of the e-commerce business model, the stakeholder role has become strategic and includes key employees, business partners and customers. Without information regarding the stakeholders' perception of performance, the effectiveness of any enterprise application is in jeopardy.

This chapter will explore the strategies for building large scalable Web sites. The management responsibility for Web infrastructure planning should include performance and reliability. The growth in e-commerce and its strategic business role brings a challenge to IT management for providing an adequate network infrastructure.

A number of strategies have evolved during the last few years for building scalable Web sites. This chapter examines the traditional approaches to building an Internet Web site that can grow to handle large volumes of traffic. Next, the current array of product offerings is examined and finally, the future trend for high performance Web sites is discussed.

BACKGROUND

Managers of Internet-based businesses or e-commerce divisions of traditional businesses must take responsibility for the responsiveness of their Internet businesses. Menasce and Almeida (2000) raise a number of questions of concern for managers regarding Web site performance:

- Is the on-line trading site prepared to accommodate the surge in volume that may increase the number of trades per day by up to 75%?
- How can IT people justify to higher levels of management an enormous dollar amount for site expansion without showing any analytics?

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