

Role of External Website Load Stress Testing for Smoother e-Business Growth

Why Periodic Website Load Stress Testing is Necessary

The advent of electronic business and its worldwide expansion has inevitably brought its own problems. Surges in volumes of ecommerce transactions have meant delays and outages with overloading of systems and networks — resulting in bad press, lost revenues, and poor public perception. Performance and availability suffers when an e-business site is not prepared to receive the workload generated by its customers. As the entire business of online vendors heavily depends upon the behavior of their sites, long waiting periods or downtime can prove disastrous.

Slow downloading time, surveys indicate, is one of the main reasons a customer abandons the site and looks for another vendor's site instead. Customers, implicitly expecting a certain level of service, typically become impatient and take their business elsewhere after approximately eight seconds of waiting for a page to download. This 'eight-second rule' relates to end-to-end response time, which includes server-side response and the interwoven network time. Experiments have shown that an extra second above the eight-second response time increases the clock out rate by up to 30%.

Poor site performance may make a prospective buyer leery during a single visit or lead them to avoid a site altogether. An online company, whether it is a brokerage service or a merchant, must offer its customers high-quality, round-the-clock service, guaranteeing performance, availability, and security. Online vendors, therefore, need express assistance in periodically gauging the performance of their websites using various levels of externally simulated loads to help prepare them in advance to handle expected traffic effectively without any loss of business opportunities.

The Dilemma e-Business Sites are Facing

A substantial proportion of online vendors, after starting their e-commerce website, do not pay much attention to its performance, feeling a false sense of security, that the initial infrastructure requirements will cater to their needs endlessly. It must be understood that future load levels are a combination of three factors—the natural evolution of Web traffic, the deployment of new applications and services, and changes in customer behavior. With the success of any e-business, there usually comes a critical point where that site's response time becomes a bottleneck to its growth. These vendors are always enthusiastic about traffic and think that the more visitors the website attracts, the more profitable the e-business must be. That is correct, but, unfortunately, only to a certain limit.

Some e-businesses fail to prepare for the traffic generated by their own advertising campaigns. Too many visitors can cause a huge strain on Web servers and network components, which results in website slowdown or even failure. Web applications crash, and customer distrust and dissatisfaction ensue. What should be done? All online vendors should prepare for high traffic, find the bottlenecks in their Web applications, and know exactly how many users their Web servers can handle without any risk of slowdown.

Website Load Stress Testing Can Help Vendors Handle Their Own Growth

By periodically monitoring the site through simulated loads, an e-business can always prepare itself by knowing the degree of capacity enhancement and scalability needed to accommodate their gradually expanding business, as well as the occasional burst in site demand. This can be useful in many ways.

System administrators and capacity planners can anticipate performance and operations problems, as well as prepare alternative plans to support surges in website traffic, by:

- Analyzing customer demand variations.
- Understanding the patterns of e-business traffic.
- Evaluating peak-to-average ratios.
- Performing quantitative forecasting.
- Selecting the demand and workload parameters to be forecast.
- Analyzing historical data.
- Analyzing the forecasted results.

The easiest way to find the weak points of your Web server and your network is to perform a Web load stress test. These days, there are a lot of internal and external stress testing solutions. The internal tools, no matter how complex and expensive they are, have one common drawback: they are installed either on the Web server that is being tested or on a computer that resides on the same network as the Web server. Clearly, this approach cannot provide clean results, since the testing application shares the hardware resources that it is examining.

External Web Load Stress Testing – The Best Approach

External Web load stress testing solutions exist and operate outside your network, which allows them to provide the most comprehensive picture of how your Web/database/ application servers and link network(s) react to a heavy traffic load. An advanced, external stress testing service usually has several testing agents (servers) situated in various parts of the world. The agents can simulate up to 10,000 simultaneous Internet visitors! Each simulated user may go through your Web application several times. That is why the generated traffic may be overwhelming. During these stress testing experiments, it is up to you to choose how many simulated users will connect to your Web server and how many times, reflecting your predicted traffic load.

Your Role During Stress Testing

During the stress test, your primary task is to monitor your Web server hardware resources, such as CPU load, RAM, and hard disk usage. Your external stress testing service provider will generate an extensive report for you, but your own system logs will help you immensely. You must do your best not to miss the moment that stress testing begins; that is why having the precise time set on your system is a key issue here. The most thorough and accurate stress testing services are synchronized with atomic clocks.

What Needs to Be Done to Enhance Site Performance?

The quality of a website's service depends upon several interrelated factors, such as site architecture, network capacity, and system and application software. E-business sites may become popular very quickly. Therefore, once the site owners are advised of the stress test results and analysis based on the predicted load, how quickly the site architecture can be scaled up becomes important. It is important to determine what components of the site should be upgraded—database servers, Web servers, application servers, or the network link bandwidth. Maintaining the quality of service that may be

compromised due to enhanced traffic requires careful analysis of the factors involved in order to find the optimum solution. This is even more important as many small- or medium-sized companies may not be able to afford frequent hardware upgrades or expansion. It benefits businesses of all sizes to know the threshold traffic points above which their website's performance starts to deteriorate. If their predicted e-business traffic is above the threshold, as determined by simulated load results, then only the remedial action is called for.

Conclusion

The new economy is characterized by an infinite number of purchasing options available right now the customer learns about them. The very impulse to buy is now part of the same process. Through unprecedented levels of information exchange between individuals and organizations, the new economy has changed the way buyers and sellers find each other, compare prices and value-added services, optimize business processes, and reduce costs. Better prepared sites can significantly reduce the amount of volume burst-induced damage to site performance. Although it is difficult to predict erratic patterns of website demand, a site must be prepared for these spikes in traffic. External website load stress testing can play a significant role in providing e-businesses advanced preparation to meet such challenges.