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Discovering Web Performance Issues Before Your End Users Do

The Essentials Series

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Monitoring Web Performance from Your End Users' Perspective

Web sites provide an excellent extension of any organization's ability to communicate, interact, and serve its customers, business partners, employees, and stock holders. Web sites allow an enterprise to provide targeted, contextual information 24 × 7 without the expense of having people available to text and man phones all day, every day. Online sales, customer service, personnel requests, benefits distribution, media management, and a wide host of other functions can be serviced through well-designed and easily accessible Web portals.

Of course, as you use Web sites to fulfill these functions, they stand as a representative of your organization. Your Web sites become your organization to the end users. Sites that make it easy for the user to complete intended tasks quickly and effortlessly enhance the user's confidence and loyalty as well as trust of the organization. Conversely, a site that frustrates, confuses, or prevents a user from interacting with your organization will destroy that goodwill.

With the importance that Web sites have gained as a representative of your organization, it becomes increasingly important to make certain that those Web sites perform as expected. Knowing how the site looks and feels to end users—in terms of performance, accuracy, and full functionality—will help ensure your organization is properly represented.

This series will highlight the importance of Web site performance to your organization. It will compare the importance of internal and external monitoring and demonstrate the importance of both. It will show how to keep your site operating as designed at all times, and how to use monitoring to proactively control the costs of maintaining your Web sites.

The Significance of Web Performance to Your Organization

Web sites have become ubiquitous in doing business. People have gone from timidly looking for scraps of information in Web searches to using Web sites as the primary means by which they do business with organizations. Although some obvious examples, such as Amazon, do their primary business on the Internet, virtually all organizations, large and small, need some Web presence to establish their credibility and reach as many customers, employees, and business partners as they can.

Web Sites Represent Your Organization

Whether you prefer it or not, your Web site represents your organization. It both services and showcases the hard work of salespeople, customer service representatives, public relations managers, human resource (HR) representatives, and a host of other publicly facing functions. The behavior of the site then becomes just as critical as the performance of your employees.

Most firms acknowledge this reality, and concentrate on perfecting site design. They spend time and money on making the site attractive and easy to use. Just as you would train your employees to fulfill their roles properly and within corporate guidelines, so too should your Web site be designed to take orders, answer customer questions, help employees, and inform management of critical information.

With your employees, the ability to fulfill their roles is regularly evaluated in reviews. You recognize good behavior and correct poor behavior. The question is, do you do the same for your Web sites? If the Web site is a true representative of your organization, its behavior should be measured and evaluated on a regular basis. You should keep a baseline of performance, and record changes in that baseline over time. The measurements should be used as a guide on how to improve the site and make it better.

Using objective performance monitoring to identify poorly performing areas of your Web site will help you focus your efforts on the areas that are most critical to the site fulfilling its role in the organization. Knowing that users can access the site and its features without performance bottlenecks will help ensure that those users will maintain their confidence in your organization.

The Performance of Your Web Sites Define Your Organization's Credibility

Have you ever tried to place an order on a Web site only to have the site fail after you spent 5 minutes filling out the Web form? Have you tried to get information on a product or service only to find that broken links prevent you from reaching your goal? Or pages that take so long to download that it simply is not worth trying to use the site?

Sites that work quickly, simply, and elegantly will inspire the user. Their reaction to the performance of the site will be translated to your organization.

When the order process goes smoothly, a user is more likely to use the site to order again. When the user can get the information they need from a Web site, they are less likely to call and demand conversation with a real (paid) person. When the user can submit a healthcare claim without incident, they will not need as many contacts with human representatives. The user will see the functioning of the site as a reflection of the efficiency of your organization, and the respect you have for their time. They will trust your organization, and often share that trust with others. It is an infectious and invaluable means of building your brand, increasing your revenue, and receiving the best return on investment in your Web site.

Conversely, problematic sites frustrate users. They make your organization appear incompetent and reduce users' confidence in your organization.

Poorly Performing Web Sites Do Not Get Used

Users vote with their fingers. If they cannot get what they need from your site, they move on and stop using it. They often simply move on to another organization that has what they need when they need it.

Web sites extend the reach of your organization. They can provide low-cost means of relating to your client base, employee base, stockholders, business partners, and other target audiences. If a site's pages take too long to download, contain too many pages that do not render correctly, or have too many buttons that fail when they are clicked, the site will not be used. The investment made to construct and operate the site is lost, and often the user base is lost with it. A simple investment in monitoring can ensure a site performs, making that investment reasonable insurance to make certain you receive the best value from the Web site.

Monitoring from the End User Perspective

Most complex Web sites provide backend monitoring. They ensure the Web servers are up and running. They gather Web logs to determine what pages are being visited by whom and how often. They run statistics on the number of megabytes sent and received by the site.

This monitoring is important, but it misses the perspective of the external user. External users are not concerned about how the network balancer is distributing the load or which servers are currently running. They want their page to render correctly and for the site to provide them service.

Ensuring Web Page Components Work

A Web page is an orchestration of multiple, independent components that must work together in harmony in order for that page to fulfill its function. Some elements simply render text, others point to files, such as graphics and animations. Others execute scripts or call software components. The developers who create the site see each part of this implementation as an independent unit of work. The users do not care.

There is little that is more frustrating than having a button on a Web form that does nothing when you click it. The information you want to submit, the purchase you want to complete, the content you want to access is just on the other side of that button, but it simply will not work. The frustration the user feels toward that button's failure is subtly transferred to your organization when that button fails.

The obvious response, then, is to test to ensure that the button works—that the page succeeds. Testing internally can help, but you need to test in real-world conditions. That means testing with a variety of browsers on a variety of platforms. It also means testing from outside of your organization’s network. Doing so ensures that network routers, firewalls, http compressors, and other network elements do not sabotage the page components.

Static and over simplified sites can appear outdated and uninspired to the users. Elaborate animations can make pages interesting and draw more attention to your Web content. When you look at them from within your organization on 100mbps network speeds, these elements are responsive and stunning. The question remains, however, whether the same graphic can be rendered on a 768kbps DSL line with a high packet dropout rate that is located 25 router hops from your server. Monitoring your Web sites under ideal conditions with one specific browser does not provide the same experience of the end user, viewing the site in a remote location, on the device or browser of his or her choice.

What End Users See Matter Most

A page might work for 80% of its content. The page text renders accurately. The pictures are in place. The layout works. If some aspect of the page fails, it might still be an overall success if it does most of its job. This thinking is all too often the perspective of someone who builds pages and understands the complexity of the elements within the page.

Unfortunately, it is not the viewpoint of the user. To the user, the entire page either works or it doesn’t. If the user has to overlook defects in the page, then the page is inferior. The shortcoming makes users wonder about the quality of the organization that published the page: What other aspects of the business does the organization overlook or consider “good enough?”

Internal testing can catch obvious flaws like missing links. Such testing cannot, however, catch all the things that can go wrong from the time the page leaves the corporate Web server to the time it reaches the user. Unless the page is tested under the same conditions the user views the page, the tester does not really know what the user is seeing.

Capturing the End User Experience

To capture the Web site from the user’s viewpoint, one needs to stand in the user’s shoes. I know sites that function flawlessly in Google Chrome but are broken in Microsoft Internet Explorer. Browsing on an Apple iPad may be a very different experience from accessing a site with Firefox. How different is the site when viewed on a cellphone or through an iPod? Sometimes, even the time of day can affect how the Web page performs.

Design can compensate for some of these changes. Many sites will detect small, mobile screens and divert to different pages. But it can be difficult to ensure the site is kept in sync. Even within the same brand of browser, the specific version that a user has can make a significant difference in the way the site works.

Proactive monitoring of the Web site can catch errors before the user finds them. Identifying errors and correcting them quickly can protect your organization from breaching end user trust and damaging the confidence and loyalty they develop toward your organization through your Web presence.

Keeping Sites Running at All Times

Getting a site up is time consuming and often stressful. Once sites are up, there is a tendency to move the team to the next project. It is easy to forget that the site is a working piece of software that, like anything else, requires regular maintenance.

Site Conditions Continually Change

Most active sites are filled with connections to other sites, content, and components. As time moves on, things have a habit of changing. Links to other pages might break when the page is redesigned, upgraded, or depreciated. Connections to database servers might degrade as the site becomes more popular and the underlying systems cannot scale to meet the load. Components from third parties—such as payment processing systems, shipping systems, and so on—might change or fail.

Many sites become victims of change, and no one realizes it. The site gradually loses users, and no one really knows why. If the site begins to perform badly—pages stop working because of changes in network bandwidth, there are changes in an end user's preferred browser, or components degrade or stop working altogether—users will feel let down. They simply stop using the site altogether, or find what they desire from one of your direct competitors.

Dealing with the Changes Before They Become Issues

Change is inevitable. It is important to regularly monitor to ensure the end users are receiving what you intend for them to receive. A systematic monitoring schedule can reproduce the end user experience and detect issues *before* end users experience them. This level of proactive monitoring protects the trust you have built with your user community.

Changes to the Web site should be transparent to the user. To ensure the updates you've made are up and running, keep in mind the following considerations:

- Revisions to the Web pages should be thoroughly tested from the end user perspective before the end users see them.
- Changes that cause degradation of performance should be found as early as possible so that steps can be taken to maintain performance before it becomes apparent to the users.
- Broken links, malfunctioning Web services, pages that render incorrectly, and so on should be identified and corrections made while minimizing the number of users who discover these defects on their own.

By regularly monitoring the pages in an environment similar to your users, you can stay ahead of the curve. You can continually maintain the loyalty and trust you have earned from your user community.

Cost Benefits of Proactive Monitoring

There are several important cost benefits to proactively monitoring your Web sites:

- Web sites that work provide the highest return on investment. Users satisfied with the site remain satisfied with the company that hosts the site. This relationship will allow you to maintain and grow your user base.
- The easier it is to interact with your Web site, the more useful your Web site will prove to the end user. As people become increasingly acclimated to conducting business on the Web, sites that operate well become one of the easiest and more cost effective ways to reach out to a growing user community.
- Monitored sites can automatically alert IT of problems on the site. This automation can minimize the time the site fails to serve the user community. It preserves customer goodwill and avoids extended loss of opportunity. Getting an email alert to the right person at the right time can save time, money, and a great deal of aggravation.
- Sites that have been tested and have minimal flaws require less customer service support. The time spent relaying users to use different browsers or trying to figure out why the buy button did not work can be diverted to more productive purposes.
- Finding and correcting small problems when they occur can help avoid dealing with large problems later.

Maintaining a Web site as a positive, healthy representation of your organization can help you take full advantage of the cost benefits and world-wide reach that Web-based services can give to your organization. The next article in the series will take a closer look at monitoring complex Web transactions, and the ways that proactive monitoring can help an organization use their Web sites to the fullest advantage.