

# Monitoring business critical web applications – Need for an effective strategy

White Paper from Site24x7.com



**HTTP://WWW.**

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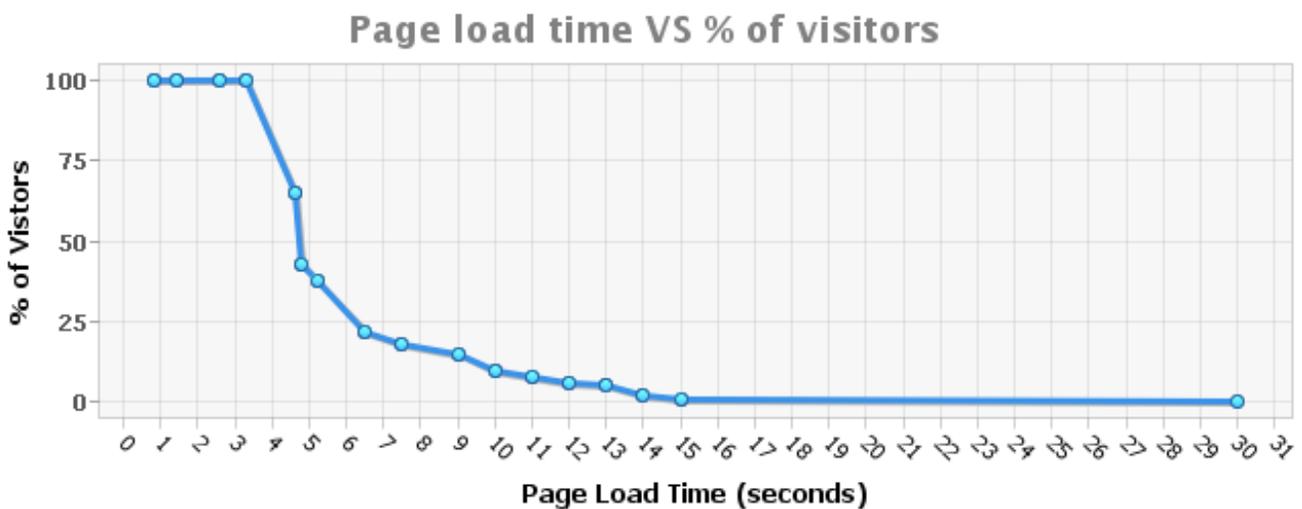
## Executive Summary

The number of companies using internet as their business platform has increased at an exponential rate in the past decade. Business critical web applications need to be monitored in an objective manner to ensure optimal performance. This paper discusses the challenges faced by businesses in monitoring the performance of their web applications, the need for an effective web application monitoring strategy and the Web Application Monitoring feature of Site24x7.

## Overview

E-Commerce has moved beyond its original conception of a cost-saving tool and is now a standard business tool used widely for creating business opportunities. Industry has shown that many new markets for intangible products are being created around changing patterns of how people work and spend their leisure time. This allows consumers to access services such as buying discount coupons, best buy sales, banking, insurance and travel reservations directly from their homes and businesses. E-commerce is being widely used to develop world wide customers in media, entertainment and communication sectors. Banking, online trading and online money transfer services are some of the businesses that use internet for high value transactions.

What is the core that ensures the success of a web-based business? The answer is obvious; fast loading and fully functional web applications that can be accessed anywhere around the world, 24x7. Fully functional web applications ensure a smooth transaction, whether it is an e-cart check-in and check-out, online gaming, or an internet banking transaction. Slow loading web pages will not only affect sales, but also have long lasting negative effects that will be detrimental for businesses in the long run. And this makes one thing clear, a failing web application in a critical web-based business spells doom for the business.



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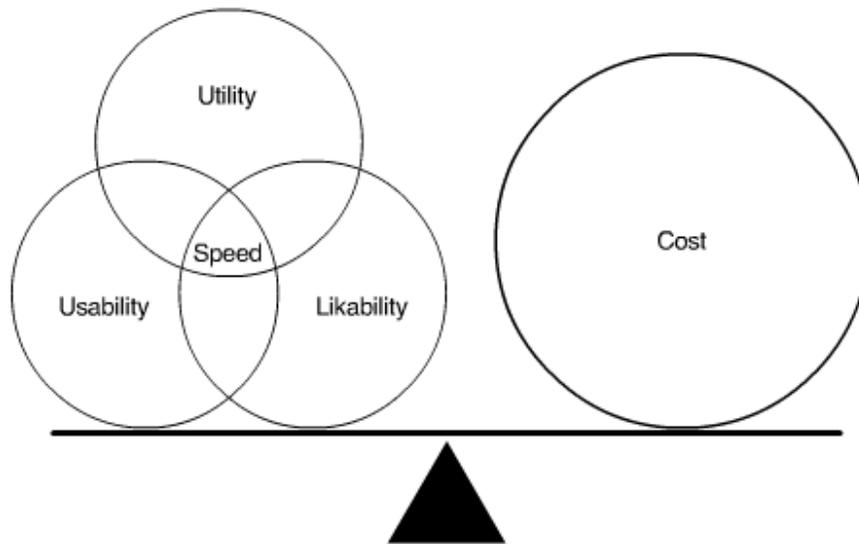
## The Challenge

Today more and more companies rely in composite web-based applications to implement mission critical and revenue generating services. For these web-based businesses to succeed, optimal functioning of web applications is necessary. But most of the time, this is easier said than done. The problems they face in keeping tab on the performance of multi-step web applications are manifold.

One of the major factors that hit businesses big time is slow response time of web applications. It is not just enough to maintain maximum uptime for your web applications. For a web application that involves multiple steps, for example an online shopping cart, it is of utmost importance that each step in the application responds faster and loads faster. A study by 'Akamai' established that 40% of online shoppers consider fast loading web pages as the most influential factor for them to revisit a site. The study results further reveals that two seconds is the new threshold in terms of an average online shopper's expectation for a web page to load and 40 percent of shoppers will wait no more than three seconds before abandoning a retail or travel site. Faster web pages will also increase conversion. In such a scenario, it becomes obvious to monitor how long it takes your user

to request and download a page in your application. To put it in layman's parlance, how long your application makes your customer wait before he can complete a transaction.

The following diagram, famously known as Shackel's Acceptability Paradigm explains the above discussed facts.



Shackel's Acceptability Paradigm

Source: Shackel, B. (1991). *Usability – context, framework, design and evaluation*. In Shackel, B. and Richardson, S. (eds.). *Human Factors for Informatics Usability*. Cambridge University Press, Cambridge, 21-38.

According to Shackel, when users take decisions about using a website, they tend to weigh the utility or functional efficiency, usability or perceived ease of use and likability or a particular attitude (like or dislike) about using a system against the total cost of the system. (From the diagram it is clear that speed is the main factor that the other 3 factors rally around)

## **Response time of web applications depends on a number of factors. A few of them are discussed below.**

### **Content Delivery Network issues:**

Interactive agencies increasingly use Content Delivery Networks (CDNs) for faster delivery of online content they have developed for clients. A content delivery network (CDN) is a collection of web servers distributed across multiple locations. CDNs help to deliver content more efficiently to end-users. Network proximity determines the selection of server for delivering content to a specific user. When it comes to delivering content, the server with the fewest network hops or the server with the quickest response time is chosen. However, the use of CDNs might affect the actual response time for an end-user, primarily due to location specific issues. Hence it becomes imperative that these distributed servers used for content delivery should be monitored objectively. The task is tiresome and unless you have a global monitoring network it is next to impossible.

### **DNS issues:**

The most important use of DNS server is translating human-readable domain names to machine-readable ip addresses. If your organization's DNS servers are down or not functioning properly, it might lead to problems for your end users. Studies show that it takes around 20-120 milliseconds for DNS to look-up the IP address for a given hostname. The browser can't download anything from this host-name until the DNS look-up is completed. The latency of a particular DNS look-up can vary depending on the proximity of a DNS name server that can provide a valid response. Any delay in these look-ups can affect the response time for an end-user and hence this is critical from a business stand point.

## Database issues:

In all transactions where the data is stored in the client databases, database issues play a crucial role in determining the response time of the end user applications. All the DB layers need to function in optimal condition for a request to go through smoothly. Multiple DB layers sometimes delay the application response times. In-depth analysis is required to isolate whether DB issues are causing application downtimes and sadly very few monitoring solutions offer a step-by-step analysis.

## The Solution

Real-time data that provides insight into end-user experience is the only solution to address the issues posed by web applications. This information would allow organizations to identify the root causes of performance issues and make educated decisions about actions required to resolve performance problems in timely manner. Acting on this data will help organizations deliver consistent, reliable and optimum services that will result in increased business, revenue and end-user satisfaction. Acumen into the complete end-to-end business transactions, empowers companies to proactively manage incidents, as and when they occur. Implementing an end-to-end web application monitoring feature enables you to monitor the uptime and performance of your mission critical web applications, thereby protecting your revenue and improving the overall online experience for the end user.

## Site24x7 Web Application Monitoring

Site24x7 is a hosted website and web application monitoring service from ZOHO Corporation, one of the prominent players in the field of cloud based applications. Site24x7 offers an array of monitoring services like website monitoring, web application monitoring, DNS and mail server monitoring and so forth. These monitoring solutions are designed for providing real time data and insight into your mission critical web applications and websites and thereby increasing the credibility of your businesses.

Site24x7's web application monitoring feature allows organizations to monitor different parts of their infrastructure (network, servers, databases & applications) using a single platform and is devised to address majority of the challenges we discussed above. With Site24x7 one can remotely monitor the availability and performance of business-critical web applications that involves multiple web transactions. If any errors are detected, instant notifications are sent via SMS, email or Twitter.

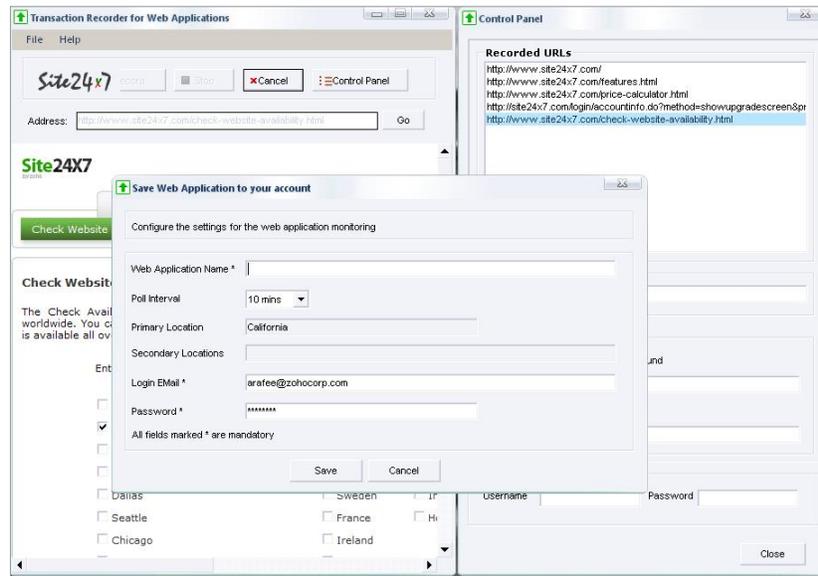
The above features combined, gives us an effective solution for some of the most critical problems we discussed above, like how to keep tab on performance of your web applications, how to identify failure in a particular transaction and how to know a failure as and when it happens. This means that problems such as connectivity issues, slow page load time, or content errors are immediately notified to you, empowering you to take corrective actions before the customers are affected. By identifying which page in the sequence failed, faster corrective measures could be taken before it affects your customers and your business.

## How does Site24x7 meet the challenges?

Using Site24x7's web application monitoring feature, you can perform URL sequence monitoring to see what is returned at every step of a web transaction. Site24x7 provides a downloadable recorder tool that records all user transactions on your site in their sequence. These transactions are

played back at regular intervals to check the optimum functioning of each step. This helps to find which particular step in the transaction failed/not delivered optimum results. This also allows your IT to check whether the database layers are working properly since failure in DB request execution will result in slower response times, as we discussed in the 'Challenges' section above.

With web application monitoring, you also know how effectively your web applications are performing at any given point of time. The response time issues we discussed above can be sorted out with this real-time data. Instant notifications, at the time of an incident, ensures that your IT can take faster remedial measures before it affects the end user.



Site24x7 Recorder Tool screenshots

## Advantages

Using an effective web application monitoring system will definitely add value to web based businesses. Some of the major advantages of using Site24x7 web application monitoring services are;

- Monitor customer transactions end-to-end.
- Monitor the performance of your web applications from a global perspective.
- Get instant notifications when a downtime incident is reported.
- In-depth reporting features like Summary Report, Busy Hours Report, Trend Report, Downtime Report etc.
- Share critical performance data throughout the enterprise using advanced User Management feature.
- Avoid unnecessary overheads.
- Monitoring expertise spanning different verticals like website monitoring, DNS monitoring, web page analysis, mail server monitoring and so forth.

## Conclusion

A reliable web application monitoring solution that is capable of monitoring end-to-end customer transactions is essential for organizations to ensure optimal performance and critical revenue. Site24x7's web application monitoring feature stands out as a unique solution to address the varied challenges posed by complex web applications today. Site24x7's web application monitoring solution will give the power of real-time data validation to organizations and will result in improved end-user experience. With such a solution in place, critical revenue and business credibility of your organization is in safe hands.

## About Site24X7

Site24x7 is a hosted website monitoring service which helps you monitor the uptime and performance of websites, online applications and servers. The monitoring is done from multiple geographical locations across the world thus giving you a global perspective of the end-user experience.

With a global monitoring network of 25+ locations, Site24x7 helps you check the performance and uptime of your websites, web applications, DNS or mail servers from a global perspective. Site24x7 supports various protocols like HTTP, HTTPS, SMTP, TCP, IMAP, SSL, Ping etc. The web application monitoring capability simplifies multi-step web transactions.

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