Website Monitoring: *Contemporary way to test and verify*

RajBala Simon
AIIT, Amity University.Noida, India
rajbalasimon@gmail.com

Laxmi Ahuja
AIIT, Amity University. Noida, India
lahuja@amity.edu

ABSTRACT

Website monitoring is the process of testing and verifying that end-users can interact with a website or web application .Website monitoring is often used by business to ensure that their sites are live and responding.

KEYWORDS

Web Monitoring	Verify
Test	URL

INTRODUCTION

Website monitoring is the process of testing and verifying that end-users can interact with a website or web application .Website monitoring is often used by business to ensure that their sites are live and responding.

The most important online face of your organization is your website. So what damage is caused to your brand and sales when your website is unavailable? It may be that your customers cannot perform online transactions and go to your competitors instead. Or it could be that client email is not received and your helpdesk gets inundated with calls.

Website security monitoring is also used to verify that the domain (and web site) is not only responding properly, but has not been hacked, blacklisted or hijacked. Multiple tools are available to automate site availability checks and security checks.

As a website owner or webmaster, it is your goal to find ways to attract visitors to your site as well as to get them stay longer to use your site services. However, if your website performs poorly and you are not even aware of it, it will be really hard to realize these goals. This is where an efficient web site performance monitoring solution can help.

Various companies like site 24x7 provides the functionality of continually monitors web site's performance on a 24x7 basis and alerts you whenever these is any degradation of performance. A key indicator of the performance of any web site is its response time. When a web site is slow or unresponsive, it may drive users away from the site.

According to Gartner 50 % of visitors will abandon a page if it takes more than 15 seconds to load. Therefore, Website owner should never compromise with slow loading Web Pages.

Site 24x7's website performing feature checks for various attributes such as response time, etc. For example, you can add a URL, say//mycompany/estore.jsp, for monitoring. You can set up a threshold for the webpage such that if the page load time of that page is more than 5 seconds, you should be notified through e-mail/SMS/RSS. This helps you in taking quick action before it affects end users.

A perfect monitoring provides daily/weekly performance reports through email to know your site's performance on a daily/weekly basis. Website owner can also view time –based response time reports form 'Reports' tab that give them a fair idea of the performance of their websites over a period of time. If they noticed a constant degradation of performance, then they can take necessary actions to improve it.

The website performance monitors tests your web site URLs as often as every minute from multiple cities around the globe, and generates real-time alerts if page errors or performance problems occur. Also provide detailed reporting and extensive global monitoring to ensure than your site consistently performs at the preferred levels.

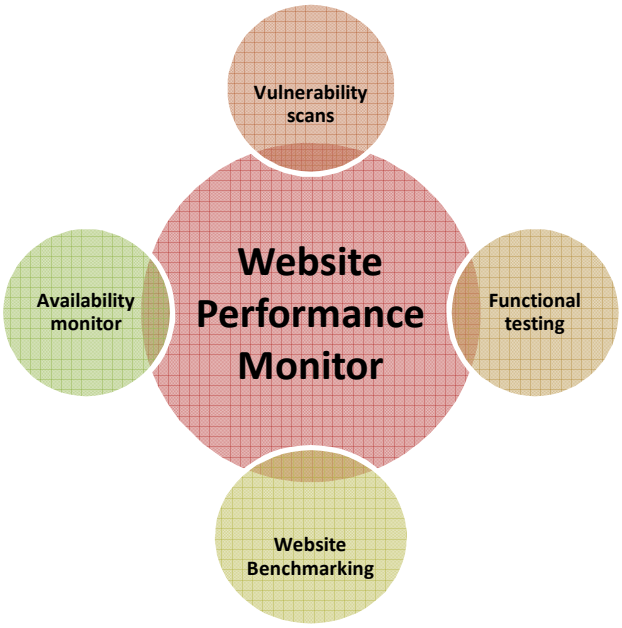
Website monitoring has become a full-fledged industry, giving website owners a myriad of choices from monitoring software, to subscription services to live monitoring. There are "inside jobs" and there are global agents. There are do-it-yourself systems and there are experts waiting to serve you. There are web hosting companies that monitor for their clients and there are free agents. What king of website performance monitoring service do you want? It depends on your requirements:

The website performance Monitor captures all performance details for every webpage object, including images, flash, java script, css and more.

RESPONSE TIME HISTORY

If your business is online, monitoring the performance of your website is must then there is a solution that can help.

The solution is called 'website performance monitor' and includes a choice of the following safety checks on your website:



VULNERABILITY SCANS

With a dramatic rise in malicious attacks it has become critical to scan your websites and servers for security vulnerability. Having the latest firewalls and intrusion detection systems will not protect your organization if they are not kept up-to-date and configured correctly. Vulnerability scan is an affordable way to routinely check company's security risk and provide you with peace-of-mind that software applications cannot be hacked into from those outside of your organization.

WEBSITE BENCHMARKING

As the internet has become the preferred channel through which many customers obtain information, products and services, can your business afford not to know how your website compares to your competitors? Website Benchmarking measures the performance of your websites from locations across the globe, to provide accurate load time, speed and availability statistics. These measurements are used to create site performance index (SPI), which represents the users' perceptions of your website. SPI is then ranked, relative to that of your sector and competitors within countries relevant to your business. A website benchmarking report gives you an overview of trends in relative performance and availability across sectors and countries.

AVAILABILITY MONITORING

It is estimated that downtime coasts European businesses 5 billion a year. While every minute of downtime can cost your business in lost revenue, it can also severely damage your brand reputation and bring your business to a halt. With a globally distributed infrastructure of more than 35 monitoring stations, various web hosting companies provides availability monitor continuously checks your websites, servers and applications, to deliver verification that your website is available and functioning properly. Availability monitor conducts checks from an external perspective, to replicate real user's experiences and provide your business with independent information about your website's performance and availability.

FUNCTIONAL TESTING

Functional testing checks the behavior of your site and identifies where exactly bottle necks or problems occur. It also ensures you know how your customers experience your site when they interact with it from different locations. Functional testing monitoring scripts can be written to identify a wide variety of possible issues, from slow page response times, to monitoring the behavior of forms such as login pages and issues with shopping baskets.

PRODUCT OPTIONS

Website Performance Monitor is available from various web hosting companies in different cost effective options, allowing you to pick the option that is right for your business.

Receive reliable website monitoring over 25 globally disturbed monitoring stations	Receive independent comprehensive verification of your website's performance	A web based portal for easy viewing of monitors, rules and reports	Respond quickly to website problems, resolving issues before your customers encounter them	Verify internal departments and external suppliers (ISPs/hosting) are meeting their SLAs

WHAT IMPACT ?

If it's up…	A.K.A…	It's down… per year
90%	n/a	876 hours
95%	n/a	438 hours
99%	Two 9's	87 hours, 36 minutes
99.9%	Three 9's	8 hours,45 minutes, 36 seconds
99.99%	Four 9's	52 minutes, 33.6 seconds
99.999%	Five 9's	5 minutes, 15.36 seconds
99.9999%	Six 9's	31.68 seconds

TYPES OF WEBSITE PERFORMANCE MONITORING

There are 2 main types of website monitoring:

1. **Synthetic monitoring** also known as **Active monitoring,** and
2. **Passive monitoring** also known as **Real monitoring.**

- **Synthetic Monitoring**

Synthetic monitoring (also known as Active monitoring) is **website monitoring** that is done using a **web browser** emulation or **scripted red web browsers.** Behavioral scripts (or paths) are created to stimulate an action or path that a customer or end user would take on a site. Those paths are then continuously monitored at specified intervals for **availability** and **response time** measures.

Synthetic monitoring is valuable because it enables a **webmaster** to identify problems and determine if his **website** or **web application** is slow or experiencing **downtime** before that problem affects actual **end users** or customers. This type of monitoring does not require actual web traffic so it enables companies to test web applications 24x7, or test new applications prior to a live customer facing launch.

Because synthetic monitoring is a simulation of typical user behavior navigation through a website, it is often best used to monitor commonly trafficked paths and critical business processes. Synthetic test must be scripted in advance, so it is not feasible to measure performance to every permutation of a navigational path and an end user might take. This is more suited for **passive monitoring.** Synthetic testing is useful for measuring availability and response time for critical pages and transaction (how a site performs from all geographies) but doesn't monitor or capture actual end user interactions.

Passive monitoring is also known as **real user monitoring** and can be used to monitor actual user sessions on web sites to detect and capture errors and performance slowdown. Passive monitoring products are usually based on hardware devices that sit **inside the firewall** and capture traffics as it enters.

TYPES OF PROTOCOL USED FOR WEBSITE MONITORING

Website monitoring services can check HTTP pages

- HTTPS
- FTP
- SMTP
- POP3
- IMAP
- DNS
- SSH
- Telnet
- SSL
- TCP
- PING

- Domain Name Expiry
- SSL Certificate Expiry

And a range of other ports with great variety of check intervals from every 4 hours to everyone minute. Typically, most website monitoring services test services test your server anywhere between once per hour to once per minute.

Advanced services offer in browser web transaction monitoring based on browser addons such as Selenium or iMacros. These services test a website controlling a large number of web browsers, thus they can also detect websites issues such as Javascripts bugs that are browser specific.

✓ **Web Service-SOAP Monitoring**

SOAP is a lightweight protocol for the exchange of information in a decentralized, distributed environment. It is an XML based protocol that consists of three parts: an envelope that defines a framework for describing what is in a message and how to process it, a set of encoding rules for expressing instances of application defined data types, and a convention for representing remote procedure calls and responses. The agents can replicate one or more end-client requests and monitor Web Services for availability and proper content.

50 MAJOR WEBSITE PERFORMANCE MONITORING TOOLS

1. **Allmon**

Description: The main goal of the project is to create a distributed generic system collecting and storing various runtime metrics collections used for continuous system performance, health, quality and availability monitoring purposes. Allmon agents are designed to harvest a range of metrics values coming from many areas of monitored infrastructure (application instrumentation, JMX, HTTP health checks, SNMP). Collected data are base for quantitative and qualitative performance and availability analysis. Allmon collaborates with other analytical tools for OLAP analysis and Data Mining processing.

Requirement: Platform independent

Download data: No data feed available

2. **Apache JMeter**

Description: Apache JMeter is a 100% pure Java desktop application designed to load test functional behavior and measure performance. It was originally designed for testing Web Applications but has since expanded to other test functions. Apache JMeter may be used to test performance both on static and dynamic resources (files, Servlets, Perl scripts, Java Objects, Data Bases and Queries, FTP Servers and more). It can be used to simulate a heavy load on a server, network or object to test its strength or analyze overall performance under different load types. You can use it to make a graphical analysis of performance or to test your server/script/object behavior under heavy concurrent load.

Requirement: Solaris, Linux, Windows (98, NT, 2000). JDK 1.4(or higher).

Download data: No data feed available.

3. **Benerator**

Description: Benerator is a framework for creating realistic and valid high-volume test data, used for (unit/integration/load) testing and showcase setup. Metadata constraints are imported from systems and/or configuration files. Data can be imported from and exported to files and systems, anonymized or

generated from scratch. Domain packages provide reusable generators for creating domain-specific data as names and addresses internationalizable in language and region. It is strongly customizable with plug-in and configuration options.

Requirement: Platform Independent

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 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 services that may be compromised due to enhanced traffic requires careful analysis of the factors involved in order to find the optimum solution.

This is all the more important as many small- or medium-sized companies may not be able to afford frequent hardware upgrades or expansions.

It benefits business 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 stimulated 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 at the moment 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 preparations to meet such challenges.

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