



WEB ACCESS REPORTING

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Abstract

In the rapidly growing "e-world", it is becoming increasingly important for enterprise managers to know exactly how their network resources are being used.

Such awareness is essential if they are to configure, plan and control those resources in ways that optimize performance and avoid legal and personnel problems.

In this environment, the most significant component is the World Wide Web and the activity that takes place on it. To keep track of Web activity, it is important that management receive comprehensive, detailed reports that accurately and precisely reflect the volume and character of that activity.

Web filtering is possibly the most controversial category of products available on the market. No other divides employees and managers. You may consider blocking and monitoring Web access appropriate for children at home or school, but does it have any place at work?

Many companies point to legal liability, productivity, and bandwidth usage as concerns that arise when employees view inappropriate (read: porn) Web sites, shop online incessantly before the holidays, or download and play MP3 files throughout the day. Sexual harassment lawsuits do occur, and it would be hard to argue that someone repeatedly bidding on eBay is being as productive as possible. If Britney Spears is coming through loud and clear but the monthly sales close is bogged down, you've got a problem.

Cyclope Internet Filtering Proxy is a cohesive web filter and content filter empowering management to control internet traffic within your organization. Through consolidating technology with the demands placed on business Cyclope is widely regarded as the industry leader in turn-key internet filtering software. Allowing users to monitor control, and report through a Web Graphical User Interface Cyclope Internet Filtering Proxy has the usability and simplicity that is associated with Amplusnet.

Background

Internet access in the work place is a double-edged sword. On one hand, such access particularly access to Web sites - can greatly increase the workforce efficiency and productivity. After all, it facilitates useful research, provides quick answers, and aids effective collaboration with colleagues. On the other hand, Internet access can reduce the efficiency and productivity of that same workforce and lead to other unintended and negative consequences. It does this by tempting workers to spend time surfing on Web sites that may be loaded with interesting, entertaining, lewd or malicious content, but are not related to work at all.

Indeed, cyber-loafing accounts for 30% to 40% of lost worker productivity, according to Framingham MA-based International Data Corporation. — Business Week Magazine. Such casual surfing not only detracts from work force productivity, it can lead to legal liabilities, primarily in the form of sexual harassment or hostile workplace lawsuits. Typically, such suits are filed by employees who have inadvertently or deliberately been exposed to pornographic images downloaded by other employees. For these reasons, today's organizations need to configure, plan and control Web-access resources and activity in ways that optimize workforce performance while avoiding legal and personnel problems.

This paper assumes that the resources are configured properly and that plans for their usage are in place. Consequently, the general focus of the paper is on control - more specifically on a particular element of control, i.e., **Web-access reporting**. To explain further, Web-access control requires three things:

- Policies and standards that prescribe proper usage of Web-access resources.
- A means of monitoring Web usage - specifically a Web-access reporting tool that can gauge compliance with those policies.
- Follow-up action by management to address areas of noncompliance.

Of these three elements, the paper focuses chiefly on the second. Nonetheless, a brief discussion of policies, standards and follow-up action may provide useful background.

Policies and Standards

Because Web-access resources are so crucial to workforce productivity and can lead to legal liability issues, more and more businesses are finding it essential to institute policies and standards to help govern their use.

Current studies show that approximately sixty percent do so. Such firms are finding that, to be effective, policies must:

- Be consistent with corporate culture;
- Define the types of Web-access activities that are strongly encouraged, strictly prohibited, or permissible within quantified limits;
- Contain detailed standards that are unambiguous, measurable and easily understood.
- Be well publicized and widely disseminated. Be balanced, reasonable and fair.
- Be designed and worded so that levels of compliance can be gauged with specific metrics and reported with high degrees of accuracy.

Put another way, an effective policy must be closely coupled, coordinated and consistent with an associated Web-access reporting system, and it must contain standards or provisions that can be accurately measured.

To be effective, Internet access management solutions must provide quantifiable information about where users are surfing, what user or department consumes the most bandwidth, and when the peak periods tax your network. — InfoWorld Magazine

Follow-up Action by Management

Assuming that the Web-usage policy is supported with an accurate Web-access reporting system, management can use the latter's reports to determine if the workforce's activity is in compliance with the policy.

If it is, further action may not be necessary. If it is not, management can choose from a range of options to correct the situation or effect desired improvements. These options include modification of procedures or processes and a variety of

personnel actions. Among the latter are approaches involving counseling, training, retraining, reassignment, reprimand, and even termination.

In any case, the important point is that the information on which conclusions and follow-up action are based must be as accurate as possible. Inaccurate, unclear, or distorted information in reports can lead to highly counterproductive actions, e.g., unwarranted reprimands or terminations, invitations to lawsuits, procedural changes that do more harm than good, etc.

The Bottom Line: To be truly effective, Web-access policies, standards and follow-up actions must be supported by a reporting tool that produces accurate information related to the workforce's use of network resources. Using "activity molding" Cyclope can filter to ensure efficient and appropriate internet browsing whilst the front-end secure administration area allows real-time updates to match evolving internal and external issues. Through interpreting raw data Cyclope Internet Filtering Proxy allows management to track their employees whilst complying statistics. We'll be exploring this subject in some detail in the pages that follow.

Web-access Reporting Software

This section discusses Web-access reporting software from an informational accuracy perspective. To preclude confusion over terminology, it begins by briefly examining the differences between inbound and outbound Web-access activity and their associated reporting tools. It then discusses the two major approaches to outbound reporting, looks at sources of the raw data from which reports are generated, and points out sources of inaccuracy that can be avoided.

From a very broad, high-level perspective, there are two types of Web-site activity reporting products (software). One type deals with inbound Web site visits, and the other deals with outbound visits to Web sites.

Inbound activity is concerned with: "Who is looking at my Web site"

Outbound activity is concerned with "Where are my employees going (on the Web)"

While this paper is focused on the latter question, it may be helpful to briefly discuss inbound activity and how it differs from outbound activity.

Inbound Activity

Inbound activity consists of many users visiting one Web site. Such activity is of great interest to businesses that need or want to track incoming visits to their Web site. In this arena, the activity of interest is one-way (user to site), the relationship is many-to-one (many users, one site), and approaches to monitoring the visits are relatively easy to understand and implement.

Systems that report on inbound activity are designed to answer simple business questions, e.g., "How many people looked at my Web site Today?". In this environment, the terms hits and visits are often used interchangeably to denote "looking at" a site. While this does no particular harm in the world of inbound reporting, interchanging these terms in the world of outbound reporting causes considerable confusion, as we shall see later.

Hits and Visits. Currently there are no universally accepted definitions of the terms hit and visit. However, most IT experts define them as follows. Hit: A hit is any browser-related action or data display associated with Web site activity. This includes any deliberate mouse click whose purpose is to display a selected Web page in the browser. However, it also includes all the individual elements of information that appear in the browser as a result of the click, e.g., graphics, banners, ads, background audio, video images, etc. (This is the source of much confusion, as we'll see later.) Visit: A visit is a deliberate action (mouse click) that brings up a particular Web page or requests a particular download; a visit is one type of hit.

Outbound Activity

Outbound activity involves large numbers of internal users who access and receive information from large numbers of external Web sites. This makes for a complex

many-to-many relationship (many users, many sites). In addition, the activity of interest is two-way, i.e., user to site and back again.

Products that report on outbound activity are more sophisticated and complex than those that deal only with inbound activity. We'll now take a deeper look at these.

Effective Web policies are much more concerned with visits than other types of hits. The reason is simple. Web policies deal with human actions and performance, and a visit is a human action. Conversely, other types of hits occur automatically and don't reflect human behavior.

Outbound Web-access Reporting

In one way or another, outbound Web-access reporting software measures, characterizes and depicts a workforce's Web-site visitation activity. Ideally, the software answers such questions as these: "Which users visited which sites, when they did so, how often did they do so, what type of content they were seeking, how much bandwidth was consumed in the process, and were the visits in compliance with our company usage policy.

If the software does this well, it provides reports that accurately represent or model Web-visitation activity on the part of a single user, a group of users, or an entire enterprise.

Used chiefly to gauge compliance with policies and standards, outbound Web-access reports primarily address two issues:

- What types of sites are individual users or groups of users visiting? and
- How much activity are the users engaged in?

Let's see how this is done. All outbound Web-access reporting products use pre-existing log files as their source of raw data. Log files are tables of highly detailed electronic records (time-tagged logs that provide a running history of outbound Web-site visitation activity). Kept in proxy servers, firewalls or caching appliances, they list all hits associated with all outbound activity. Log files time-stamp each hit, identify visitors, identify URLs (Uniform Resource Locators), count bytes, etc. The

reporting products then produce reports by analyzing and processing the following data points:

- User ID (computer name or IP address)
- URL (Web site name and resource type, e.g., HTML, GIF, audio, etc.)
- Time-Stamp (the date/time associated with every hit).

The first of these, user ID, is easy enough to understand and will not be addressed in any detail here. The latter two, however, are crucial to understanding the accuracy issues related to Web-access reporting products. URLs and time-stamps are highly useful, but they both have certain limitations that need to be understood. Let's see what they can and cannot do to help provide accurate reports reflecting the types of sites visited and the levels of Web-access activity.

Using URLs to Determine the Type of Activity

By itself, a URL (Uniform Resource Locator) has very little if any meaning to non-technical personnel. For a URL to be meaningful, i.e., to help determine types of sites visited, the software must correctly categorize it (sports, porno, finance, etc.). The software must also classify the URL as either a visit or other type of hit. If the URL reflects an actual visit, the software should also be able to label it as acceptable or unacceptable in accordance with the organization's policy. Some products do these things effectively others do not.

Keeping a database with URL is the solution that most producers are using. Cyclope Internet Filtering Proxy does not because on the Internet millions on new web sites are added and their content is frequently changing. The statistics that we provide allows the network administrator to easily determine is any of the URL's visited by one user do comply with acceptable usage policy.

Managers and administrators need an accurate picture of each user's level of activity. They need this information to fully evaluate compliance with acceptable use policies, identify serious problem areas, and verify that the most productive sites are being fully exploited. Compliance with policy is particularly important.

Amplusnet has developed the Cyclope-Series in order to provide you access to accurate information. That is why we recommend you using Cyclope Internet Filtering Proxy in conjunction with Cyclope Enterprise Monitoring Solution which allows you to see how much time a user spent on a web site. This unique feature is not provided by any filtering software.

Conclusions and Summary

Web-use policies employing clear standards can help organizations ensure productivity, control costs, and avoid legal liabilities. And if designed and administered properly, they can do this without hurting morale. However, to obtain these benefits, management needs to couple the policies with well-designed reporting tools. Coupling means that the policy and the reporting system use similar terminology, and the standards in the policy refer to the same parameters and units of measure as the metrics in the reporting system. When this is done, the result will be reliable metrics and accurate reports. These in turn will provide accurate indications of compliance and help ensure sound decisions and productive actions.

Our user's testimonials

"[Cyclope] is an intelligent piece of software that we use across all our clients networks. It is often the case that we reap kudos for the information we are able to in turn provide to our clients. Our contracts with clients give us the liability of securing their IT infrastructure, and preventing online threats. This is now a service that is automated through Cyclope and in turn provides savings that both CRT and our clients benefit from."

Stacie Kearns, Vice President, CRT Technologies LLC

"...before Cyclope we had IT staff who would monitor internet traffic and control internet traffic accordingly. This is no longer necessary, as the areas of sport, pornography and music are all controlled through content matches supported by the

content filter. Through being able to identify the individuals who attempt to breach our policy, there is no longer a problem”

Owen Colebrook, IT Director, Sentinel plc

“We use the internet filtering proxy for a variety of reasons, however the reason we originally choose Cyclope was because of it's flexibility. Our IT consultant identified Cyclope as a solution that would not limit our options for ISP and connection. It is very important to us, that we can filter chatting on Instant Messaging from academic and educational resources. St. Andrews now feel that we are carrying out our duty to parents and pupils through using internet filtering.”

William Kerr, Headmaster, St. Andrews High School