



Reporting Types and Smart Engine Analytics

Introduction

In order to keep enterprise networks secure and operating efficiently, organizations need to have clear visibility into the Internet traffic traversing their networks. IT personnel need access to real-time information related to employee Web use and the health or performance of the network. Managers and HR personnel are more concerned with human behavior in the workplace and want data related to high Internet activity as well as the details of and patterns in employee Web use. They and other users, such as forensic investigators, may need more analytical, precise information related to visited sites, user names, time spent online, and content categories, spanning a long period of time.

One issue that organizations face is that the right information is not getting to the right people in the right format. That is to say, managers who may want to address productivity issues with employees, based on their Internet use or abuse, do not have the information in an easy-to-read and actionable format. They may not even have reporting access to their department's Web activity whether through data visualizations such as charts, e-mailed reports, or a manager portal. Another issue is that if there is reporting on Web traffic in the organization, it may be inadequate in showing relevant human behavior in the workplace. Without knowing the human behavior in the organization, management is unable to define what is normal and flag anomalies that may indicate insider threats, that is, human actions, whether unintentional mistakes or malicious acts, that threaten data security. They are also unable to detect trends in workforce productivity or determine whether an employee is in compliance with corporate policy.

Reporting dashboards and reporting engines provide several benefits for IT staff, administrators, managers, HR personnel, and other users. They can provide specific information to a specific audience in the company, increasing efficiency and productivity. These reporting tools can be used for analysis of human behavior and system health which allows companies to manage and control employee Internet use as well as network performance and security. They can be customized to offer different types of analyses for different users and therefore serve different purposes. They comprise different reporting types such as Operational, Strategic, and Analytical reporting. Reporting engines, also called Smart Engines, feed the data to these tools and provide the analytics necessary for accurate, actionable reporting. Reporting types and Smart Engines are discussed below.

Reporting Types and Smart Engines

Operational reporting shows activity that is happening now and is based on real-time data. With this reporting type, IT can monitor current employee Web activity and system performance, and the data is updated frequently. Operational reporting components are designed to be viewed multiple times during the day.

Strategic reporting provides information at set time frames, and its individual visualizations, such as dashboard charts, are updated on a recurring basis at less frequent intervals. In relation to key performance indicators or metrics, Strategic reporting can show a snapshot of top consumer Web activity with interactive visualizations providing the details.

Analytical reporting shows patterns of activity over time as well as comparisons of Web traffic occurring in specific time frames. Its data visualizations may consist of trend and comparison charts as well as detailed audit reports, allowing you to analyze large volumes of Web activity data for long-term audits and forensic investigations.

Reporting engines provide the analytics for all reporting types, ensuring that companies have adequate information to manage and control employee Web use. Smart Engine analytics affords detailed analysis,

permitting the investigation of trends, policy violation, Internet misuse, and ultimately, human behavior. For companies struggling to address the human factor of cybersecurity, the Smart Engine is a necessity to get the best possible insight into the security issues affecting the IT environment and the human behavior occurring in the workplace.

To support your Web-use reporting needs, Wavcrest provides customized reporting capabilities to supply different audiences in the company with information specific to their needs. The organization can then observe normal human behavior and detect anomalies with the availability of dashboard charts, metrics, reports, and Smart Engine analytics. The company also saves time and money by serving dashboards, reports, and metrics from an easy-to-use portal. Most importantly, with Smart Engine analytics, the Smart Engine catches what you might miss with large volumes of data and allows you to identify issues faster.

Wavcrest's Reporting Capabilities

While one audience may have specific Web-use data needs, there will be overlap in the types of Web-use reporting tools best suited for that audience. The important thing is that that audience's questions are being answered by the reporting tools to drive decisions and actions, that is, the right information is getting to the right people.

Operational

Operational reporting covers two areas: real-time employee Web-use metrics and real-time system metrics--pertinent information for IT personnel. With real-time employee Web-use metrics, IT can monitor Web activity in real time by user, URL, and content category. IT personnel can also monitor the employee bandwidth consumption in the enterprise. Based on an established threshold, bandwidth can be throttled using a content category control policy or a group control policy. Alerts are triggered and e-mail notifications are sent when thresholds are reached. Real-time employee Web-use metrics give a real-time running display of the browsing behavior of employees, that is, current user activity, and identifies bandwidth hogs in real time.

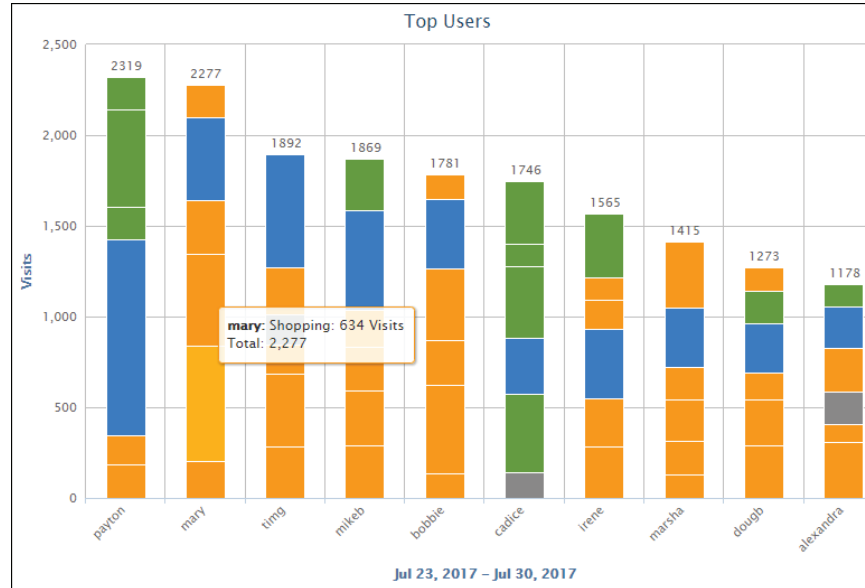
| ID | IP | Date/Time | Category Name | URLs |
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| sampson(ntlm) | 10.10.10.124 | Apr 16, 11:21:43 AM | Advertisements/Tracking Sites | http://ads.cnn.com/event.ng/Type=count&ClientType |
| sampson(ntlm) | 10.10.10.124 | Apr 16, 11:21:43 AM | Images | http://i.cdn.turner.com/cnn/cnn_adspaces/2.0/creat |
| sampson(ntlm) | 10.10.10.124 | Apr 16, 11:21:43 AM | Advertisements/Tracking Sites | http://ads.cnn.com/html.ng/site=cnn&cnn_pagetype |
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| sampson(ntlm) | 10.10.10.124 | Apr 16, 11:21:43 AM | Social Media | http://connect.facebook.net/en_US/all.js |

Real-Time Employee Web-Use Metrics

With real-time system metrics, IT personnel can monitor the health status of different aspects of the system. These include the overall status of the application server, system information such as memory, disk utilization, and number of threads, the validity of all log file data, the success of imported log files, jobs queued for processing, and product event errors and messages on various processes such as scheduling reports and importing data.

Strategic

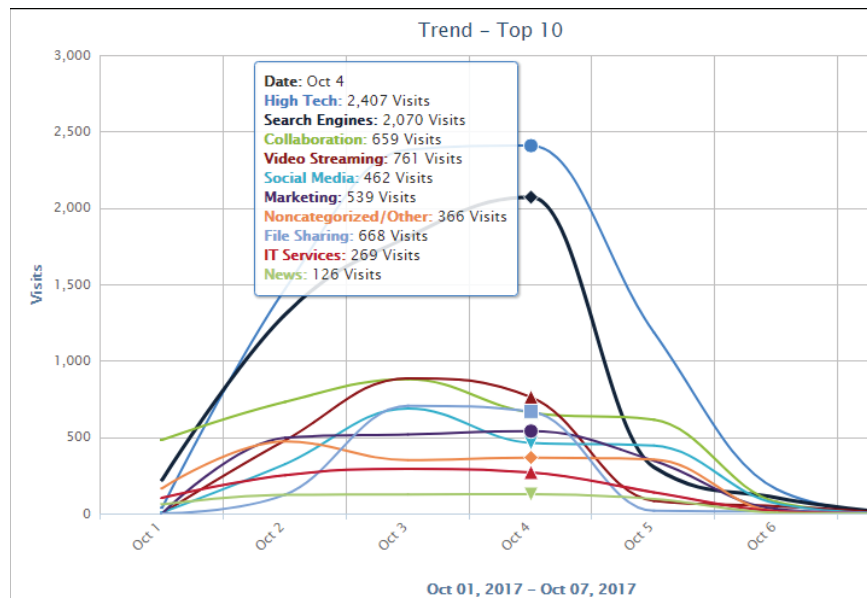
Strategic reporting summarizes performance over set time frames, for example, last week or last month. This data may be of interest to managers and HR personnel as well as IT staff. Dashboard Top charts depict Web use for the top users, groups, categories, classifications, and sites in the enterprise. With these interactive visualizations, management can quickly discover and track which users, categories, or sites had the most activity, how much time users are spending online, and so on. With drill-down capability, these charts can provide the details of user Web activity for audits and investigations.



Top Users Chart

Analytical

Analytical reporting shows trends in data over time as well as comparisons of Web activity. This data may be of interest to managers and HR personnel. Dashboard Trend charts depict Web activity for a selected user, group, category, or classification, or traffic data in hourly or daily increments for a predefined date range, such as Yesterday, Previous 24 Hours, and Last 7 Days. Data can also be viewed for custom date ranges. Trend charts also allow you to compare the Web traffic for a set date range with that of a previous period to detect any anomalies in Web activity.



Top Categories Trend Chart

Also included as part of Analytical reporting are categorized audit reports that deliver a comprehensive analysis of user activity including their visits, search terms, and inappropriate sites. These low-level audit reports allow you to get a detailed analysis of a single user’s visits including the site’s category and full URL, view search terms that a user entered on popular search sites such as Google, and see specific URLs to which a user was denied. They can be quickly run as ad hoc reports saving you time in your audit or investigation.

Smart Engine Analytics

Smart Engine analytics provide the data for Wavecrest reporting. With its precise algorithms, the Smart Engine is used by charts and reports to present accurate and up-to-date Web-use data. The Smart Engine utilizes algorithms that perform functions such as determining visits, user names, and time online from Web traffic, and categorizing URLs into logical groups based on content. Without the Smart Engine and its analytics, the reporting components could not provide the adequate information that your company needs to manage employee Web use. The Smart Engine makes technical data usable and manager-ready. Examples of its algorithms are discussed below.

The differentiation between Web traffic hits and visits is of paramount importance for companies that want to manage the human factor. True visits are actual user clicks that do not include multimedia URLs, such as graphics, audio Web pages, advertisements, or Web pages that were requested as part of a visit, that is, unsolicited. By identifying the content of each URL, the Wavecrest Visit algorithm distinguishes between these user clicks and the unsolicited traffic, i.e., hits. The organization can then get a true, meaningful picture of the level and type of Web activity occurring in the network.

When Web filtering and reporting products do not include user names in Web traffic records, user Web activity is lost and unaccounted for. The company may not even know that this is occurring. The Wavecrest User Name Caching algorithm uses the cache user name if available, versus the IP address, allowing you to capture all activity of the user and get more detailed data in reporting.

When users are online, that is, on the Internet, they could be reading a Web page, performing another task in a different application with the browser open, or possibly away from the computer entirely with

the browser open. The Wavecrest Time Online algorithm uses a highly accurate priority method for calculating users' time online. Managers and IT administrators can quickly see which users, categories, sites, and so on had the most volume of activity and address any potential issues, such as productivity loss, bandwidth slowdowns, and policy noncompliance.

The Wavecrest Categorization algorithm is designed to report on all Web activity. With a number of standard and cloud service categories and an unlimited number of custom categories, the Categorization algorithm categorizes the organization's Web activity so that managers can analyze their employees' Web usage. Custom categories allow additional monitoring where you can create a white list for more tailored reports so that custom URLs are included in or excluded from reporting. Wavecrest URL categorization detects and identifies a broad range and a high percentage of total Web activity.

Conclusion

With a variety of audiences or users requiring very specific Web-use data, organizations seek and require different types of Web-use reporting capabilities that will meet their needs. Operational, Strategic, and Analytical reporting provide benefits for IT personnel, administrators, managers, HR staff, and other users, and can be customized to meet the needs of the business. Operational reporting monitors employee Web activity and network performance in real time. Strategic reporting provides snapshots of Web activity with drill-down capability, identifying top Internet consumers. Analytical reporting shows trends and comparisons in Web activity as well as detailed data.

Smart Engine analytics allows you to analyze large volumes of data over extended periods of time, utilizing algorithms to determine precise data from Web traffic and feeding this data to the reporting components. With its industry-leading algorithms, the key benefit of Wavecrest's Smart Engine is providing the manager-ready, actionable reporting that nontechnical personnel in the company needs. Backed by its 20-plus years in monitoring and reporting on Web traffic, Wavecrest offers customized reporting capabilities for all users in the organization to effectively manage and control employee Web use as well as network performance.

About Wavecrest Computing

Wavecrest has over 20 years of proven history of providing reliable, accurate Web-use management and Advanced Log File Analyzer products across various industries. Managed Service Providers, IT Specialists, HR professionals, Forensics Investigators, and business managers trust Wavecrest's Cyfin and CyBlock products to manage the human factor in business Internet usage—managing cloud services, reducing liability risks, improving productivity, saving bandwidth, and controlling costs. Wavecrest is trusted by large government and commercial organizations such as US-CERT Homeland Security, U.S. Department of Justice, USPS Office of Inspector General, National Grid, Johns Hopkins, and a growing list of global enterprises and government agencies. We are a proud long-term GSA contract holder. For more information on the company, products, and partners, visit <https://www.wavecrest.net>.



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