



A Guide to Wavecrest Reports

Preface

Welcome. This guide is written for you and other professionals interested in learning to interpret and use the reporting capabilities of Wavecrest products. Without using technical jargon, the guide emphasizes interpretation and use of the information provided by these capabilities. In keeping with this emphasis, it does not discuss product setup and administration or Web filtering—subjects that are covered in detail in other Wavecrest documents.

The guide has four sections:

- **Introductory Overview** - What Wavecrest reports are all about.
- **Concepts and Terms** - Keys to understanding reports and charts.
- **Dashboard** - Quick-look views of Web activity.
- **Reports** - Descriptions of customizable summaries, audit reports, and export capabilities.

Take special note of the Dashboard and Reports sections. They constitute the main body of the guide and discuss the products' two primary information presentation modes. Although interrelated, they are discussed individually to facilitate the learning process.

Wavecrest products feature two other information presentation modes that are more technically oriented and are not covered in detail herein. (1) The Real-Time Web Monitor enables product administrators to “see into” the Web logs in real time and observe traffic as it unfolds. (2) The Real-Time Protocol Monitor enables product administrators to view non-HTTP traffic, i.e., IM, P2P, e-mail, etc. in real time.

Note: As indicated, this guide's primary purpose is to help you interpret and use the reports and charts. Report creation is covered in the user guides. However, a brief discussion of the concepts that underlie the process may help achieve the guide's primary purpose. You will find that discussion in the Concepts and Terms section.

Sources of Additional Information:

- User Guide (found in your product under **Help - User Guide**)
- White Papers (found at www.wavecrest.net/editorial/)

Introductory Overview

In Wavecrest products, the two primary modes for delivering Web-use information are:

- Dashboard Charts
- Reports

Dashboard charts are most useful for high-level, quick-look assessments of Web activity, while reports are ideally suited for more in-depth, multi-perspective analyses.

Both modes provide accurate, actionable Web-use information that is *people-centric*. That is, primarily, they emphasize the *human* rather than technological aspects of Web-use management. Why do they do that?

The reason is simple.

While technology is essential to the Web-use management process, human activity alone determines whether or not the benefits of Web usage outweigh the risks.

Based on this understanding, the majority of Wavecrest reports and charts provide functional rather than technical information. In doing so, they provide accurate, usable answers to a variety of user-centric, Web-use questions such as:

- Which of our users visited which sites, when, and how often?
- What type of content were they seeking?
- Are their visits “acceptable” in relation to our usage policy?
- How much bandwidth did they consume?
- What kinds of usage trends are we experiencing?
- Are some departments or users more abusive than others?
- What kinds of threats or risks is the activity generating?
- Is there reason for immediate concern or action? If so, what kinds of actions can the information support, e.g., retraining, disciplinary action, process modification, and policy changes?
- Can I easily copy and distribute the reports and charts?

We trust that this guide will show you how to get the answers to these questions.

Concepts and Terms

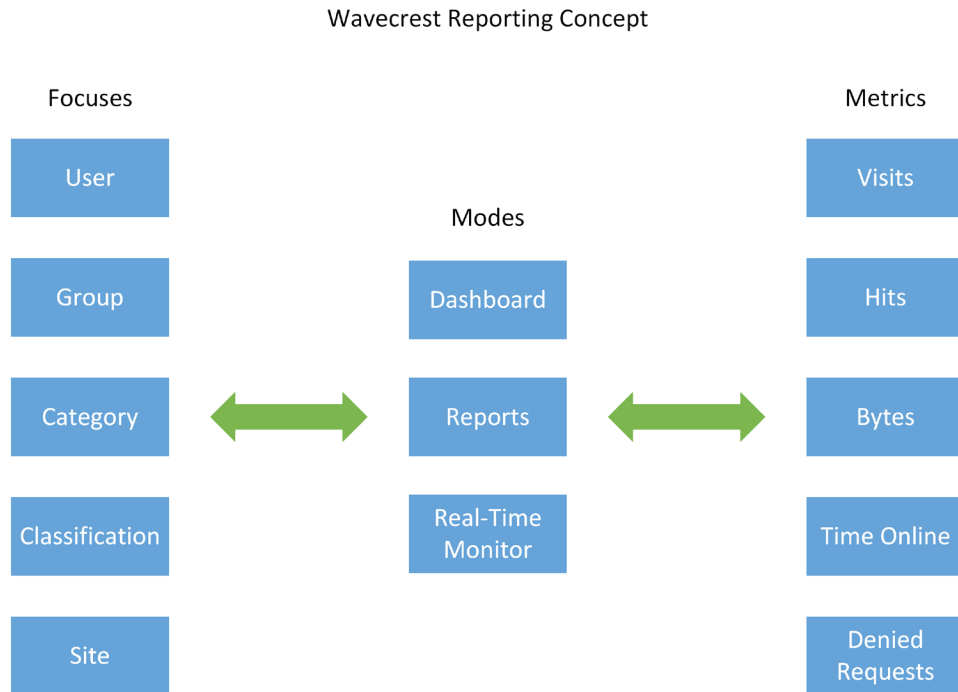
Introduction

This section introduces you to key concepts and specialized terms that are relevant to the structure of the reports and Dashboard charts. A clear understanding of this structure will be helpful as you learn to interpret and use Wavecrest reports and charts.

Since the reports and charts must be created before they can be interpreted, we begin on that note.

Report Creation Concepts

Wavecrest products enable you to create and customize numerous reports and charts by combining the focuses, modes, and metrics shown in the following diagram.



By combining focuses, modes, and metrics, Wavecrest products enable you to view and assess Web usage from multiple perspectives.

Viewing the data from several angles can be very important in complex Web-use management situations. As you will see, the number of perspectives is great, and each perspective can have several dimensions or aspects. However, creating the associated reports and/or charts is not complex. It employs a relatively simple concept—one that only involves a few basic step-by-step choices. The first is “focus.”

Focus

When analyzing reports, none of us want to see all the data that is available. That would be overwhelming as well as counterproductive. We only want to see a particular subset. In other words, we want to focus. At times we want the focus to be relatively broad, e.g., all users, and in other cases, we want it to be narrow, e.g., “JohnDoe.” Wavecrest products let you do this quite easily. In our terminology, focus is a particular area of Web activity that you want to look into. You can think of focus as your starting point for creating a report or displaying a chart. Choices of focus include user, group, category, classification, and site.

Once you choose your focus, the next step is to modify it to make it more specific, e.g., which user, which category, and which site. Next, if desired, you can apply a secondary focus (sub-focus) and modifier. For example, if the primary/modified focus is “User/mary,” you could choose a sub-focus and modifier such as “Category/shopping.” This would let you see Mary’s activity in the Shopping category.

Users and Groups

During initial product setup, if you choose to do so, the Groups and IDs function in the product lets you organize the monitored user IDs into groups to enable selective, targeted reporting. At customer discretion, the IDs can be user names, IP addresses, or “Anonymous.” The Groups and IDs function also has a permissions feature that lets you control the distribution of reports to protect confidentiality and privacy.

When you create reports, you can pick and choose the specific users or group of users, e.g., a particular department, whose Web activity you want to assess.

Categorization

Categorization is the process of:

- Determining the types of content provided by Web sites.
- Grouping (sorting) those sites into content-labeled categories.

Typical Web categories are Shopping, Sports, Pornography, Entertainment, Financial, etc. The Wavecrest reporting process (which has 70+ categories) assigns “content labels” to individual Web sites for use in the report-generation process. For example, the label assigned to www.espn.com is “Sports.”

When you create reports, you can choose the specific category (or categories) whose Web activity you want to assess.

Classification

Classification is the process of rating categories for acceptability. During initial product setup, customers can rate individual categories as Acceptable, Unacceptable, and Neutral. (The concept is similar to the one used in the television and movie industry.)

When you create reports, you can view Web activity for one or all classifications.

Sites

In Wavecrest terminology, a Web site (and all its pages) is denoted by its domain name only, e.g., www.amazon.com.

When you create reports that list the sites that your users visited, you can choose the sites you want to see.

Note: The above paragraphs discussed focus, sub-focus, and modified focus. Though very important, these elements by themselves do not quantify Web activity. For that, we need metrics, as discussed next.

Metrics

Metrics are the variable parameters to be measured within a chosen focus or sub-focus. As defined

below, these are:

- **Visits** - A “human-performed click action” for the purpose of visiting a Web site. One click equals one visit. See **Accuracy** below.
- **Hits** - The various elements of a Web page that are loaded in a browser as a result of a visit. Examples include ads, graphics, audio, video, and text. See **Accuracy** below.
- **Bytes** - The smallest measurable unit of digitized information, e.g., text, numbers, audio, video, and graphics. Bytes are used as a measure of bandwidth consumption, memory capacity, disk space, etc., e.g., kilobytes, megabytes, and gigabytes.
- **Time Online** - Time Online is an approximation of the time that a user spends on the Internet, based on the time stamps from Internet requests made as the user browses Web sites, the average number of minutes for reading a specific Web site, and the time spent reading the last Web site before the end of the browse session.
- **Denied Requests** - This term refers to a failed attempt to access a Web site. For the most part, this occurs because the user is not authorized to access the site, i.e., his access has been “blocked.” However, it can also be caused by technical anomalies, e.g., “page not found by server.”
Note: This metric is currently viewable in the Denied Requests and Denied Requests Detail reports.

Accuracy

Accuracy is a very important concept in the field of Web-use management. To support sound management decisions, *the accuracy of Web-use calculations is absolutely crucial*. To provide it, Wavecrest reports distinguish actual “visits” from ancillary or extraneous “hits” that result from each visit. As discussed earlier, in Wavecrest terminology, a “visit” is a single, deliberate human action (e.g., clicking a URL link). Most importantly, visits constitute the primary measure of *human* Web usage, while hits and bytes are the primary measure of usage from a technical perspective.

Dashboard

General

The Dashboard provides high-level line graphs and bar charts that present “big picture” views of your organization’s Web activity. A number of these quick-look views depict trends over time, while others compare activity between users, groups, content categories, and sites. Easy to set up and easy to interpret, Dashboard charts provide a quick and efficient way to:

- Determine the amount and characteristics of the many aspects of Web activity.
- Identify potential or actual problems.

Dashboard Concepts and Terminology

The general concepts and terms discussed earlier are applicable to Dashboard charts as well as reports. Others discussed below are applicable to the Dashboard only.

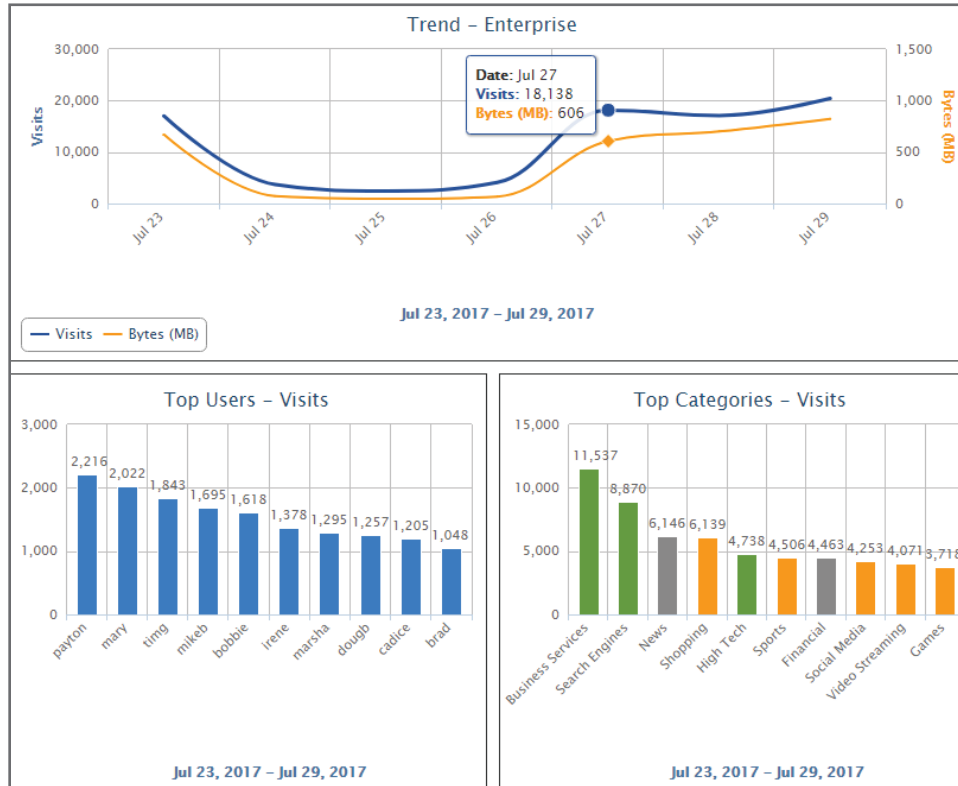
- **Top Charts** - A top chart is a listing of the most active users, categories, or sites with selected metrics summed as appropriate (metrics can be visits, hits, bytes, time online, etc.). **Benefit** - *Top charts help you quickly identify potentially troublesome users, overused categories, and sites that may need to be blocked.*
- **Trend Charts** - A trend chart shows the levels (volume) of various aspects of Web activity over a specified time frame and can compare trends of activity by date range. **Benefit** - *Trend charts help you quickly determine whether a particular type of activity or performance is improving or deteriorating and allow you to detect any anomalies.*

Dashboard Charts

Some examples of Dashboard charts and what they can do for you are presented below.

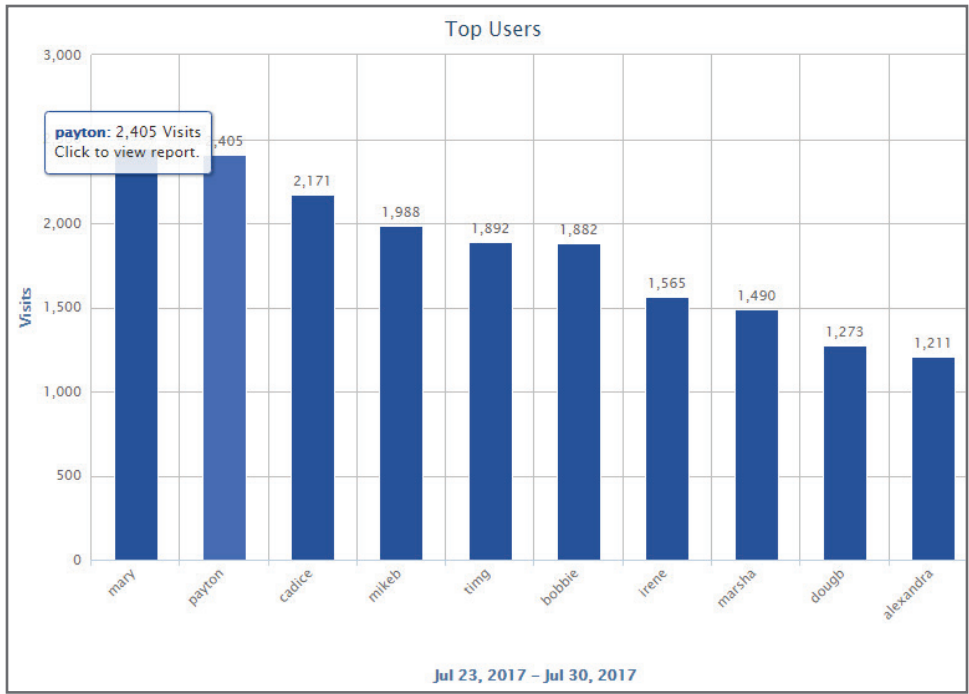
Dashboard Home

Get a quick overview of your entire organization's Web activity. Spot spikes in visits and bandwidth. Identify the top users and most visited categories.



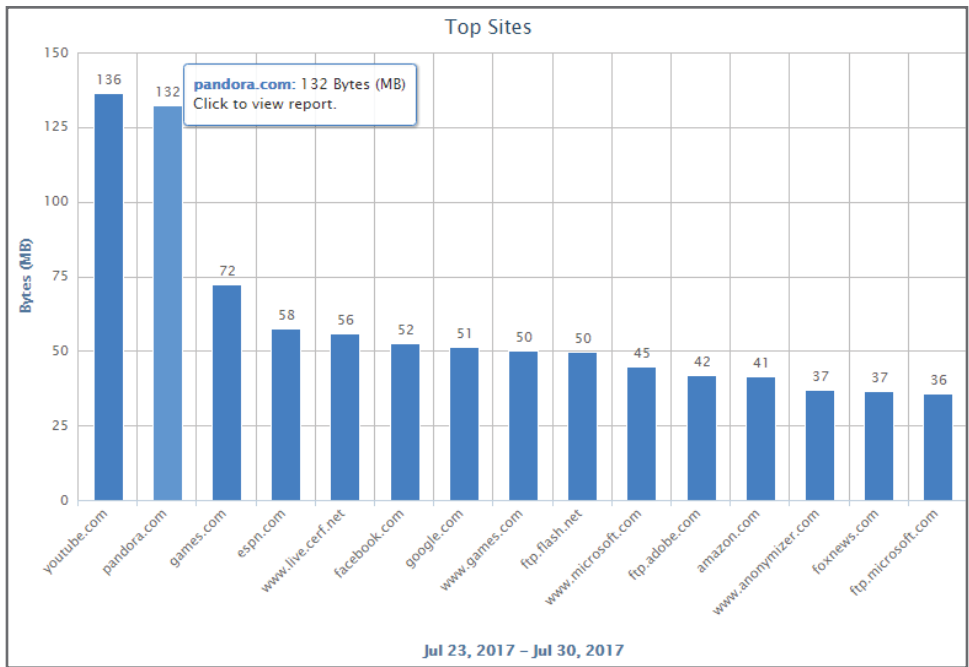
Top Users Visit Chart

Quickly find out which users had the most visits, hits, or time spent online, or used the most bandwidth for the time period you specify.



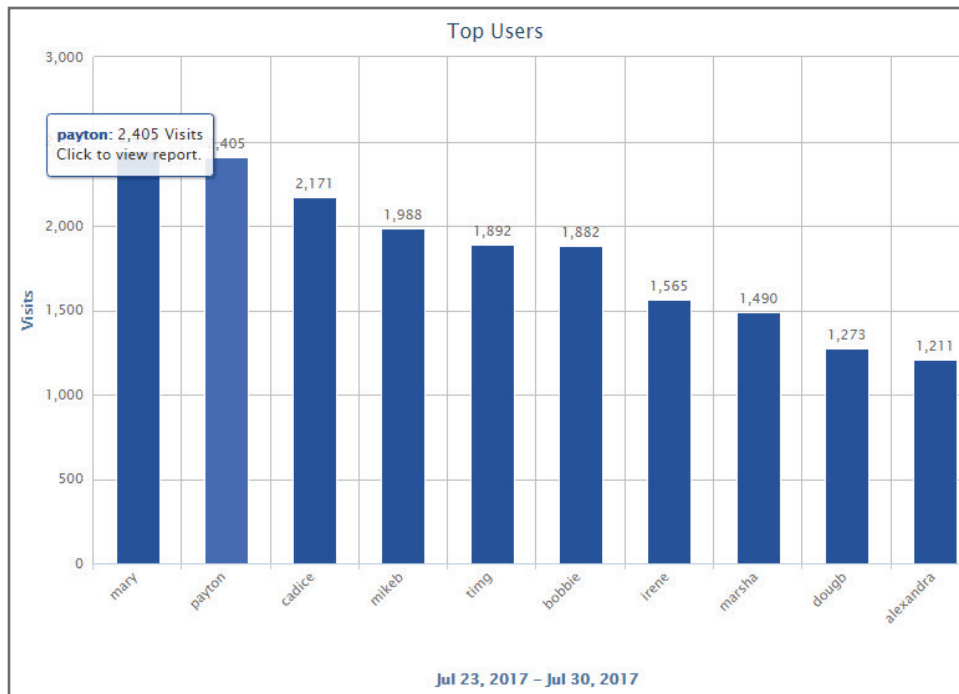
Top Sites Bandwidth Chart

Find out which ten sites are consuming the most bandwidth or had the most visits or hits for the time period you specify.



User Trend Chart

Detect unexpected spikes in bandwidth that could indicate Web use. Quickly determine if these trends are desirable or undesirable. View visits, hits, bytes, or time spent online (as applicable) over time for users, groups, categories, and acceptability classifications. Compare trends by date range to detect any anomalies in Web activity. This example shows visits by user “payton.”



Reports

General

Wavecrest products provide several templates that enable customers to create and customize reports that address typical Web-use management issues. Some of the reports are high-level summaries while others are highly detailed. They can display Web activity generated by—or related to—a single user, a user group, an entire organization, content categories, Web sites, acceptability classifications, and bandwidth consumption. In addition, they can be customized as to specific categories to display, number of users to display, all hits or visits only, time frame covered, and groups or users to be covered. Customers also specify metrics to be applied, e.g., visits, hits, bytes, and denied requests. Template-based reports can be browser-viewed, printed, saved, and sent via e-mail. They can be generated as manual, one-time reports or scheduled for later automatic generation with new time frames. Recipients of the reports can use them to assess their users' Web activity from various perspectives within specified time frames.

Concepts and Terminology

The general concepts and terms discussed previously are applicable to reports as well as Dashboard charts. Several others discussed below are applicable to reports only.

- **Policy Settings** - This term is applied to a group of modifiable usage policy settings that Wavecrest products apply to users or groups of users. Typically, these settings are based on and correlate with the customer's AUP, and they affect how some of the information in reports is displayed. An example of a policy setting is the Control Web Categories setting in our filtering products.
- **Drilldown (Interactive Functionality)** - Drilldown is the ability to access a more detailed report on a group, user, or category by clicking that group, user, or category in a report.

Types of Reports

In general, Wavecrest products provide the following types of reports: high-level summaries, audit detail (low-level) reports, and IT reports. The descriptions below are grouped this way. Each description summarizes the information that the report provides and how it can be used.

High-Level Summary Reports

High-level reports provide managers and administrators with a variety of quick-look views of Web activity. They are very useful for: (a) general assessments of activity, (b) identification of positive as well as potential problem areas, and (c) screening the activity for “usage spikes” and other indications that may indicate a need for drilldown and deeper analysis. All high-level reports provide hyperlinks for drill-down purposes. For example, a recipient can click a user or category in a high-level report and get a low-level User Audit Detail report or a Category Audit Detail report (see descriptions of these reports below).

1. Category Audit Summary Report

Features. This report provides a synopsis of users’ Web activity in a single category that you select. It lists all visited Web sites (domains), and the time online, bytes read, and number of visits for each, but does not list individual users. A hyperlink to each domain is provided.

Benefits. This report is very useful for a quick-look determination of whether or not Web-access abuse is taking place in a particular category, e.g., Pornography.

2. Cloud Services Summary Report

Features. This report shows the Web activity of users accessing cloud services. By user, it indicates the time online and number of visits to sites in the Audio Streaming, Cloud Infrastructure, Cloud Storage, Collaboration, CRM, Development, File Sharing, HR, Personal E-Mail, Video Streaming, and VoIP Services categories. Information is presented by category, group, and user. A hyperlink to each user is provided to allow management to further review the sites that were visited.

Benefits. This report can be used to identify cloud service usage patterns to enable new cloud services, better manage cloud subscriptions, and highlight anomalous activity. It can be used to reduce the risk posed by both approved and unapproved cloud services, enabling the safe and cost-effective implementation of cloud services.

3. Denied Requests Report

Features. By category, this report shows which users were denied access to Web sites or a page on a Web site. Individual users are identified, but specific URLs are not. Each denied request is displayed in the category requested. Denied requests for a Web page can signify the user may not be authorized to receive the page, the page may not have been found by the Web server, or the page may have been blocked for access.

Benefits. If you have Web filtering enabled, this report can verify that it is working. It can also be used to identify users who may be engaging in excessive attempts to visit inappropriate or unauthorized sites. This report is also a useful supplementary tool for individual user audits.

4. Legal Liability Report

Features. This report shows Web activity that could lead to legal liability. By user, it indicates the time online and number of visits to sites in the Anonymous/Public Proxy, Cults/Occults, Fantasy Sports, Gambling, Hate/Crime, Illegal Drugs, Malware, and Pornography categories. Information is presented by

category, group, user, and user within the category. Individual sites are not separately identified.

Benefits. This tightly focused report facilitates analyses, investigations, and audits related to actual or potential legal liability issues. Results can be used to prompt further investigation or trigger immediate corrective action.

5. Site Analysis Report

Features. This report depicts Web site visits by user, group, or Enterprise from the following different perspectives. Time online percentage and time online are also provided.

- Total visits by classification (Acceptable, Unacceptable, Neutral)
- Total visits by category (Shopping, Pornography, etc.)
- Total visits by group
- Total visits by user
- Total visits by user, per category

Note: Individual sites are not identified in this report.

Benefits. The Site Analysis report looks at the same visits from different perspectives, such as acceptability, category volume, and user visits within categories. It can be used by all levels of management and by network administrators to perform audits and analyses of activity in either broad or focused areas.

6. Site Audit Summary Report

Features. This report lists the top groups and users who visited a particular site. The report can be run for more than one site and shows the total time online and number of visits made by the user, as well as the time online percentage and total visits by hourly activity. A hyperlink to each user is provided to allow management to further review the sites that were visited.

Benefits. This report can be used by administrators to get a quick, summarized look at Internet activity by Web site. It lists the users with the highest volume of activity.

7. Time Online Analysis Report

Features. The report shows the amount of time spent accessing Web sites by user, group, or Enterprise from the following different perspectives. The total number of visits is also provided.

- Total time online by classification (Acceptable, Unacceptable, Neutral)
- Total time online by category (Video Streaming, Sports, etc.)
- Total time online by group
- Total time online by user
- Total time online by user, per category
- Time online by hour

Note: Individual sites are not identified in this report.

Benefits. The report highlights the top users who spent the most time online during the reporting period and can prompt further investigation. Managers and IT administrators can quickly see which categories had the most volume of activity and address any potential issues, such as productivity loss, bandwidth slowdowns, and policy noncompliance.

8. Top Users Report

Features. This report lists the most active users in terms of time online, visits, denied hits, hits, and bytes read.

Benefits. This report can be used by administrators to get a quick, summarized look at Internet activity on the network. It lists the users with the highest volume of activity, be it acceptable or otherwise. This report is an excellent screening tool and can be used to prompt drilldown and further investigation.

9. Top Web Sites Report

Features. This report shows all visited Web sites (domains), and the category, time online, bytes read, and number of visits for each. The list is sorted in descending order by time online which enables quick determination of site “popularity.” Individual user IDs are not shown on this report, but hyperlinks to all visited Web sites are provided to facilitate further analysis.

Benefits. This report highlights the Web sites that were most visited during the reporting period. If these visits are inappropriate, you can use this information to prompt deeper investigation. You may also consider including the offending sites in your blocking regimen if you have one of our Web security products.

10. Unacceptable Visits Report

Features. The report depicts Web-use activity only within categories classified as “Unacceptable.” By category, it shows the total time online and number of visits made by individual users. Users are identified, but individual sites are not. The report also summarizes unacceptable visits by top categories, groups, users, and hourly activity.

Benefits. Managers and administrators can quickly evaluate and see patterns of unacceptable activity by user and category. The latter can be done by individual category or at a higher level by a consolidation of all unacceptable categories. If excessive unacceptable activity is indicated, the reviewer can quickly drill down to other reports for further detail.

11. User Audit Summary Report

Features. This report lists all the Web sites visited by a single user during the reporting period. For each listed site, the report indicates the category, time online, bytes read, and number of visits made to it. A hyperlink to each site is provided to facilitate further review by management.

Benefits. Management is provided with reliable information to use in analyzing, evaluating, or investigating an individual user’s Web activity.

Audit Detail Reports

Audit detail reports enable managers and administrators to analyze, assess, and investigate the Web activity of users at a deeper level and from multiple perspectives. They can be created, accessed, scheduled, and used as stand-alone reports, and can be quickly accessed by drilling down from high-level reports.

Note: Audit detail reports are characterized by the inclusion of individual URLs to precisely identify the exact sites and pages visited. All URLs in audit reports are hyperlinked for even further drilldown.

12. Category Audit Detail Report

Features. This report provides a detailed analysis of users’ Web activity in a particular category that you select, e.g., Pornography. All URLs are listed for each user who visited that category. The report also provides the time online percentage, total visits, and total time online for the top groups, users, and hourly activity in this category.

Benefits. This report is very useful for identifying the most active users and the most heavily visited sites and pages in a selected category. This makes it an excellent tool for conducting detailed audits and investigations of possible misuse of Web-access resources.

13. Cloud Services Detail Report

Features. This report shows the specific URLs of cloud services by user, that is, visits to only the Audio Streaming, Cloud Infrastructure, Cloud Storage, Collaboration, CRM, Development, File Sharing, HR, Personal E-Mail, Video Streaming, and VoIP Services categories.

Benefits. Management has a complete and concise view of every cloud service URL the user has clicked. This information can be used for cloud usage audits, identifying the most active users and the most heavily visited sites.

14. Denied Requests Report

Features. This report shows the specific URLs to which users were denied access by user. Each request is displayed in the category requested. Denied requests for a Web page can signify the user may not be authorized to receive the page, the page may not have been found by the Web server, or the page may have been blocked for access.

Benefits. If you have Web filtering enabled, this report can verify that it is working. It also indicates the number and type of blocked requests, i.e., Denied, and is a very useful supplementary tool for individual user audits.

15. Legal Liability Detail Report

Features. This report shows the specific URLs of legal liability Web activity by user, that is, visits to only the Anonymous/Public Proxy, Cults/Occults, Fantasy Sports, Gambling, Hate/Crime, Illegal Drugs, Malware, and Pornography categories that pose a legal liability risk.

Benefits. The report provides only legal liability Web use. This means that smaller, more focused reports are available to facilitate analyses, investigations, and audits related to legal liability issues.

16. Search Terms Audit Detail Report

Features. This report shows search terms that users entered on popular search sites such as Google. It includes an option to show “prefetched” search results that were performed as the user was typing. These results are referred to as keystroke searches.

Benefits. This report can be used as a tool to aid in forensic investigations. It also indicates the number of search terms entered and can give the details of a user’s keystrokes.

17. Site Audit Detail Report

Features. This report focuses on Web activity associated with one or more Web sites. Every hit or visit made to the specified URLs is listed separately for all users. Hits or visits are listed chronologically, and information included for each hit or visit consists of the IP address, user, and full URL. The report also provides the time online percentage, total visits, and total time online for the top groups, users, and hourly activity.

Benefits. Management has a complete yet concise view of all users that visited the specified Web sites and the resultant activity (hits or visits). This information can be used for personnel appraisal purposes, usage audits, etc.

18. User Audit Detail Report

Features. This very detailed report focuses on a single user. Every visit made by the user is listed separately in chronological order. Information for each visit consists of the site's category and full URL. Each URL is hyperlinked so the site or page can be quickly accessed for review if desired. A summary total of visits, time online, and bytes read are also provided by category and hour activity.

Benefits. Management has a concise but complete view of every URL the user has clicked. This information can be used for personnel appraisal purposes, incident investigations, usage audits, etc.

IT Reports

These reports provide highly useful information that cannot be neatly classified as high-level summaries or audit reports.

19. Network Information Report

Features. This report depicts the total hits, trend in bytes, and total bytes by acceptability classification, category, group, IP address, and hourly activity. No individual users or sites are identified in this report.

Benefits. This report is a powerful tool for network administrators. It serves as a valuable aid for managing and controlling bandwidth usage. By not showing users, it keeps the focus on bandwidth usage via hits, trend in bytes, and bytes, making it easier for administrators to quickly identify potential network performance problems.

20. Site Analysis Bandwidth Report

Features. Similar in structure to the Site Analysis report, this report focuses on bandwidth consumption instead of visits. It breaks down bandwidth usage by acceptability classification, category, group, user, and user within each category, showing the trend in bytes and total bytes.

Benefits. This report provides IT personnel with a comprehensive, categorized picture of how and when Web access is being used, and it does so while identifying the most active users in each category. This data is very helpful for managing bandwidth usage and advising management on corrective measures.

21. Top Bandwidth Sites Report

Features. This report shows the top bandwidth-consuming site visits made by the selected group. Each site's category is shown with the byte consumption for the site. The list is sorted in descending order by bandwidth consumption, enabling quick determination of the category and domain affecting bandwidth. Individual users are not shown on this report. Hyperlinks to all visited Web sites are provided to facilitate further analysis.

Benefits. This report quickly identifies the Web sites that consumed the most bandwidth in your network during the reporting period. If the consumption is unwarranted, you can use this information to prompt deeper investigation, or you can include the offending sites in your blocking regimen if you have one of our Web security products.

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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