



# STRATEGIC WEB SITE TRAFFIC ANALYSIS: INCREASING YOUR SITE'S ROI

A COMPLIMENTARY STRATEGIC E-COMMERCE  
WEB SITE TRAFFIC ANALYSIS FOR  
***B2CWEBSITE.COM***

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## EXECUTIVE SUMMARY

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This report analyzes your Web site traffic for the month of November, 2001 and provides recommendations based on that analysis. The purpose of this report is to ensure that you are getting the most value out of your Web site by providing an objective view of your site statistics, so that you can identify possible areas for improvement and otherwise see what's 'working' and what isn't. The main goal of this report is to help you increase your site's sales.

It is also important to note the achievement of the new B2CWebsite.com Web site. Working with key RetailerA personnel, the System Arts team built a Web site that continues to generate gross sales of over \$100,000 a month. Nevertheless, even e-commerce leaders such Amazon and eBay continue to refine their Web sites based on 'real world' operation and the kinds of performance metrics herein.

The five main Web site performance areas covered in this report—general site performance, referrer/marketing analysis, visitor path analysis and profiling, and error analysis—represent the most valuable information that can be gleaned from your Web server logs, which track visitor accesses to your Web site. Additional analyses were performed on key site performance metrics not tracked in your Web server logs, such as your internal site search feature performance. While Web server log data has some inherent limitations and distortions (as noted on the following page), it is nevertheless one of your most valuable and sole sources of information on:

- How many people visit your Web site and what they're looking for (General Site Performance)
- How Web surfers find your Web site (Referrer/Marketing Analysis)
- Who visits your Web site, where they come from, and what time they visit (Visitor Profiling)
- How visitors use your Web site (Visitor Path Analysis)
- Server and Web site performance problems (Error Analysis)

Here is a summary of the key findings and recommendations in this report:

- **Your Home page is too 'heavy' and loads too slowly for visitors using a dial-up connection to access your site.** Home page loading time should be reduced accordingly.
- **Your internal site Search feature needs improvement.** An analysis of the Search terms your visitors use on your site indicates that, all too often, they can't find the products they're looking for—even when you do in fact sell those products on your site.
- **Your vendor links/referrals are extremely valuable sources of site traffic.** Almost as many of your referred site visitors (visitors who reach your site via another Web site) reach your site via a link from one of your vendors as via one of the major search engines, including your paid search engine listings.
- **Search engines are also an important source of visitors to your site.** You will need to make some decisions this year on search engine marketing, as paid placement becomes increasingly important in a fracturing pay-per-click market.
- **Your Overture initiative—a key source of search engine placement—has been a valuable source of referrals to your site.** However, Yahoo has consistently been the single search engine responsible for the largest percentage of your search engine referrals. Overture's contract with Yahoo ends this June, and Yahoo is expected to start their own pay-per-click system, similar to Overture's. RetailerA will have to decide how to spend its site marketing dollars accordingly.
- **The majority of your site visitors appear to be largely affluent, and usually visit your site during business hours.** Your site appears to be attracting an appealing demographic that uses more recent computing platforms.

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## INTRODUCTION

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This report provides a detailed analysis of your Web site traffic for the month of November, 2001, as well as recommendations based on those metrics. The purpose of this report is to ensure that you are getting the most value out of your Web site by providing an objective view of and insight into your site metrics, so that you can identify possible areas for improvement and see what's 'working' and what isn't. The purpose of this report is to help you increase your site's sales figures.

This report has been divided up into five different sections, which represent the five main areas of analysis enabled by the information tracked in your Web server logs, and the tool(s) used to analyze those logs:

- General Site Performance
- Visitor Profiling
- Visitor Path Analysis
- Referrer/Marketing Analysis
- Error Analysis

These five areas represent the most valuable information that can be gleaned from your Web server log, which tracks most activity on your Web site (excluding most database activity). Apart from your Web server logs, System Arts and WebGunForHire also deployed an additional tool to track the use of your site's internal Search feature to capture important information not available in your Web server logs, as noted in the section on General Site Performance.

In addition to containing specific numbers on your own site traffic, this report also provides some industry-standard figures for comparison, when available and where applicable. These comparative figures provide a firmer framework for analysis of your own site metrics, and provide a context in which your site statistics gain more meaning.

This report summarizes these key site performance metrics and the strategies and conclusions gleaned from this data.

### TRACKING SITE TRAFFIC: CAVEATS & CAUTIONS

When analyzing any Web server logs to read Web site traffic there are a number of important considerations to keep in mind. First and foremost, it is important to remember that **IT IS ALMOST IMPOSSIBLE TO ACCURATELY MEASURE YOUR WEB SITE TRAFFIC**. You can glean general traffic figures and determine how visitors generally use your Web site from Web server logs, but you cannot generate exact figures on the number of visitors to your Web site or exactly how they use your Web site. This is due to the nature of the Internet itself and the various mechanisms used to route and speed traffic and data flow on the Web, such as cache and proxy servers and dynamic IP addressing.

America Online (AOL) provides one of the clearest examples of the difficulties of tracking Internet traffic. While AOL is the single largest ISP in the U.S. and is therefore undoubtedly responsible for a sizable portion of your Web site traffic, AOL members nationwide connect to the Internet via a maze of distributed cache and proxy servers that make it all but impossible to track this traffic.

Another factor complicating analysis of your Web server logs is the fact that your site is almost completely dynamic and database-driven. Web server logs were designed to record relatively simple Web file requests (HTML- and image-file requests, etc.). These logs, and the tools used to mine them, have only relatively recently begun to be able to properly recognize and account for dynamic Web site traffic such as yours.

Therefore the figures in this (and any) Web site traffic report represent estimates and averages, not exact figures. Nonetheless, these metrics are still the most accurate data available on your Web site activity and traffic today.

### ANALYSIS METHODOLOGY

WebTrends™ Log Analyzer software was used to 'read' your Web server logs for the month of November 2001 and generate the report that forms the core of this analysis. A more basic Site Activity Report similar to the one analyzed here is provided to you regularly. The monthly WebTrends Site Activity Report for November that was generated specifically for this analysis was then further analyzed, reorganized, and refined based on generally-accepted principles of Web site traffic analysis.

Information was reorganized to focus on the most important data. No data from the original report was deleted; portions of the report deemed less immediately relevant were instead moved to the Appendix (**NOTE: Appendix not provided in this 'genericized' version of this site analysis**). These portions of the report are referenced in this analysis as supporting data. Additional analyses were also performed on the data provided by WebTrends, such as combining specific site metrics with sales data to find the site's conversion rate. Relevant comments were also added to the original report, along with conclusions for strategic and tactical initiatives to ensure that you're getting the most out of your Web site.

While of course no data generated by WebTrends was altered, filters were used to attempt to generate a more accurate site traffic report. For example, the Site Manager pages were consistently showing up in visitor site-path analyses, severely skewing analysis. Therefore a new filter was implemented, eliminating all Authenticated Users from the report (Authenticated Users consist almost solely of RetailerA and System Arts staff logging on to the Site Manager section of the site).

Additionally, in the Referrers section, traffic coming from both the System Arts and RetailerA domains was filtered out since these are not 'valid' referrals. Prior to proper implementation of this Referrer filter, for example, the RetailerA site showed up frequently as a referral source for itself, a common problem in log server analysis. Other WebTrends data filters or settings used include the ad-tracking feature implemented to track click-throughs on the Holiday Gift Ideas banner previously placed on the RetailerA home page as well as on Concept Shop images on your Home page (pg. 15).

### TERMS USED IN THIS REPORT

The following terms are used frequently in this report (definitions provided by WebTrends):

- **Unique Visitor:** A unique visitor represents a single discrete individual visiting your Web site. 'Unique visitors' are determined by the IP address or cookie of the visitor's PC. For this report, WebTrends cookies were used to make these figures more accurate and to enable tracking of return visitors. Therefore, for any given time period, multiple visits by the same visitor (as indicated by the same IP address or cookie) still count as a single unique site visitor for that period.
- **Visitor Session:** A session of activity (all hits) for one visitor of a Web site. By default, a visitor session is terminated when a visitor is inactive for more than 30 minutes. Unlike 'unique visitors', visitor sessions are NOT calculated on a unique-user basis. Therefore there are more visitor sessions counted than unique visitors (117,497 visitor sessions vs. 106,349 unique visitors, or some 11,000 more Visitor Sessions than Unique Visitors).

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## 1. GENERAL SITE PERFORMANCE

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### RELEVANCE

This section provides a general overview of some of the most important metrics for your Web site. These are the core metrics by which you can determine your Web site's overall performance.

### FINDINGS

SITE METRIC	RETAILERA	INDUSTRY/COMPETITOR STANDARD
TOTAL UNIQUE VISITORS FOR NOV.	106,349	n/a
TOTAL ORDERS FOR NOV.	959	n/a
TOTAL 'NEW CUSTOMER' REGISTRATIONS FOR NOV.	1,357	n/a
CONVERSION RATE (NOV.)	0.9% <sup>1</sup>	B2C (Retail) Website Average: 2.3% <sup>2</sup>

### CONCLUSIONS

- **Room for Improvement:** The above figures indicate that your Web site's conversion ratio is less than half the industry average. In other words, less than 1 percent of your Web site visitors actually buy something on your site, at least based on a correlation of your sales and site-traffic figures. There is clearly room for improvement in your site's conversion rate. One notable point here is that the number of new customers registering on your Web site is a little over 70% higher than your total number of actual orders for the same month. In other words, some site visitors are apparently registering as customers without completing a purchase within the time period studied (the fact that the period studied was November might however account for an increased number of saved carts for early holiday shopping). It is also worth noting that your site does not require registration to 'shop' (browse products or save a shopping cart, for example). If the conversion ratio is calculated based on your new customer registrations (not orders) for November, your conversion (to registration) ratio is 1.21%, which is at least on the lower end of the range of average conversion rates for B2C Web sites.<sup>3</sup>
- **Weak Performance Points Found:** Based on the analysis detailed in this report, two likely major contributors to your lower-than-average conversion rate are:
  - **Slow page loading time (especially Home page):** Based on testing of Home page loading times via dial-up connection—detailed in the table on the following page—first-time site visitors to your site using a dial-up ISP connection may have to wait up to a minute for your Home page to load. This means that your Home page is too "heavy" to load as quickly as most Web surfers desire. Two factors mitigate this bad news somewhat:
    - The majority of your site visitors (around 60%) access your site during regular business hours, indicating that they are likely visiting the site while at work, where there is a much stronger likelihood of a high-bandwidth Internet connection (see section 4, Visitor Profiling, for details).
    - Only the first-time site visit is slow. Once most of the 'core' image files used by the site are resident in the user's Web browser cache (a standard practice), the site loads quickly (testing showed subsequent-visit Home page loading times at around 7 seconds).

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<sup>1</sup> (Total number of online orders for month, 959) divided by (Total number of unique visitors for month, 106,349) = your site's conversion ratio.

<sup>2</sup> From a study conducted by The Boston Consulting Group and Shop.org, as quoted in "How Does Your Site's Conversion Ratio Stack Up?", *InternetDay*, Nov. 1, 2001. Your retail store's conversion rate, on the other hand, likely averages 48% or higher.

### ***Home Page Loading Time (Dial-Up) Testing<sup>3</sup> Results***

<b>Web Site</b>	<b>Home Page Loading Time (1<sup>st</sup> time visit)</b>	<b>Subsequent Visit Home Page Load Time (Images Cached)</b>
<b>B2CWebsite.com</b>	<b>1:02</b>	<b>:07</b>
Oshmans.com	:19	:08
Footlocker.com	:39	:03
Rei.com	:13	:04
Gorp.com	:27	:07

- **Poor Site Search functionality:** The other main weakness of the site was the poor functionality of the site's Search feature. Full details on this issue are provided in the following section.

Standard site performance obstacles such as difficult or non-standard navigation as well as an overly-complex checkout process were tested for but were NOT encountered on the site. Additionally, the site is performing generally well overall, with gross sales figures of over \$133,000 for November.

### **SITE SEARCH PERFORMANCE ANALYSIS**

#### RELEVANCE

The Search box on your Web site is a key means by which many of your customers search for products on your site. In fact, at least 14% of your site visitors use your Search feature<sup>4</sup>. While this figure is somewhat lower than average (see footnote 5), it still represents thousands of your Web site visitors.

Understanding how your site search is functioning and what people are looking for will help you by:

- Indicating possible problems with your current Search feature to plan enhancements to improve the feature's performance, if necessary;
- Indicating which brands are the most popular (most searched-on) for product and graphic/ad placement, marketing, inventory management, and demand forecasting.

The first obstacle to analyzing your site's Search feature is the fact that it's actually a relatively simple table-query mechanism that queries your product database, included as part of your Microsoft Site Server Commerce Edition 3.0 e-commerce platform. This means that search information such as keywords used by your customers is NOT tracked by your Web server, since searches are executed on your database server, not the Web server. In fact search terms are not tracked or stored at all.

To address this challenge, System Arts built a "Site Search Keyword Trapping Table" to capture each search keyword or term for a one-week period. A custom filter was then applied to this table to remove duplicate entries from the same user (a problem found in initial testing when the user views multiple Search Result pages). The Site Search Keyword Trapping Table was implemented from Nov. 29-Dec. 6. During this time period, 4,576 searches were performed by site visitors on your site. Each search keyword or phrase was captured in the table for this time period.

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<sup>3</sup> Test conducted using a 56K modem on a PC with a Pentium III chip, using the Internet Explorer 5.0 Web browser. Dial-up network speed connections were clocked at 48Kbps. Prior to 'first visit' testing, both the browser and disk caches were cleared according to standard page load-time testing methodologies. Dial-up testing results vary by testing platform, network connection speed, network traffic loads (time of day, etc.), and operative site performance.

<sup>4</sup> Based on the one-week sampling done on your site. Note that this percentage is in fact lower than that normally quoted by Web usability experts such as Jakob Nielsen ([www.useit.com](http://www.useit.com)), who quote the number of 'search-reliant' users on most sites at accounting for up to 50% of any site visitors. And according to PricewaterhouseCoopers study, 77% of online consumers in the US use a search function to aide their e-shopping experience (study reported 3/12/01).

**General**

- **Some 4,400 of your site visitors used your Search feature in November, or around 13.75% of all your site visitors.**<sup>5</sup>
- **Your current search feature can NOT recognize common mis-spellings.** In the case of customers searching for Mountain Hardwear, for example, this means that over half of them found no search results when attempting to find this vendor’s products on your site because they used a common mis-spelling such as ‘mountain hardware’. Based on an analysis of your Top Exit Pages (pg. 71), at least some of these users probably left your site after failing to find what they sought. And a recent Jupiter/MediaMetrix survey found that at least 23% of Web site users will leave a Web site due to “limited” Search functionality.<sup>6</sup>
- **Your ‘no search results found’ message is too brief and does not assist users in finding the products they seek.** This default message, provided by Microsoft Site Server Commerce Edition 3.0, is in fact misleading: The message states “We’re sorry, but we could not find any products similar to ‘your keyword’. Please try again.” Note the use of the words ‘similar to’—this may lead the user to assume that the search feature is able to recognize similar words or ‘near hits’, when in fact it cannot—it can generally only match exact terms.

**Top 20 Brand-Name Searches**

*\*Data Removed to Protect the Innocent\**

**Other Popular Searches**

Keyword or Phrase	Total No. of Searches	Comments
womens, woman, womens	114	
men, mens, men’s	89	
kids	72	
childrens	28	Total for ‘kids’ and ‘childrens’: 100
raincoats, rain, rainwear, rainsuits	15	
windstopper	12	
girls	5	
yankees	5	

<sup>5</sup> Your WebTrends reports indicate that you had roughly 32,000 visitors to your site during the time period studied. The analysis of your Search keywords indicates that many users enter similar terms when searches fail to return desired results (unfortunately, site visitors do this less than desired, however, and often leave the site instead when their search fails to produce results). Therefore, the 4,576 searches performed likely represent some 4,400 unique visitors, or 13.75% of your total 32,000 visitors.

<sup>6</sup> Findings based on survey of 2,263 consumers conducted by Jupiter/MediaMetrix, as quoted in eWeek, Jan. 28, 2002.

## RECOMMENDATIONS

Based on the main site performance problems found—slow page load times for dial-up users and poor site search functionality—WebGunForHire recommends the following:

- **Reduce your Home page load time.** The Web browser's 'status bar' at the bottom right of the browser indicates the main reason for your slow page-load time: **Too many images are loading at once the first time a Web surfer visits the site.** While the core 'page framework' components load relatively quickly (9-11 seconds), after that the browser's status bar counts off some 72 images loading. Therefore WebGunForHire recommends that the following measures be instituted, at least temporarily to test the impact on conversion rate:
  - **Change the current rotating banner images, 30 of which currently load upon first visiting the Home page, into 4 rotating images maximum (images to be selected), or even 1 static image that could be changed monthly. Additionally, all graphic images used on the Home page should be re-checked for maximum optimization prior to placement on the page.**
  - Other measures that could be implemented include developing a '**minimized graphics**'/**faster loading version of the Home page.** A minimized-graphics site version could be presented to specific site visitors based on 'reading' the visitor's Web browser. For example, all site visitors using Windows98 and WindowsME could be re-directed to the faster-loading, fewer-graphics Home page based on the assumption that these are largely consumer computing platforms indicating that the user is visiting the site on a slower, dial-up Internet connection.
- **The Search feature on your site needs to be improved.** Recommendations include:
  1. **Improve Search feature to find Products better/more accurately.** Currently, too many of your customers cannot find the products they seek using your Search feature, even when the product is in fact available on your site. This is due to the fact that the search feature cannot recognize mis-spellings or often even plurals of many words (for example, 12 results found for a search on 'windstopper', but no results found for a search on 'windstoppers'). Options include:
    - a. **Creating a new 'keyword' table for each product.** The RetailerA Site Manager and/or staff would then likely have to manually enter common mis-spellings and plurals for each product. This is the most cost-effective option (i.e. 'most bang for the buck'), although it would be the most time-consuming and complex to manage for RetailerA. Further consideration would need to be given to impact on data imports (if any) as well as scalability.
    - b. **Implement a more robust search engine for the site,** one that can account for mis-spellings, non-product searches, etc. Costs for the search engine software alone would run from \$2,000 per month (Google's new subscription Gold Service Search) to from some \$50,000-\$2 million for an installable search engine such as Inktomi or Verity; implementation costs TBD. Further options analysis would need to be conducted in this regard as to viable product and/or service options.
    - c. **Attempt to refine the functionality of the Microsoft Index Server** that forms the core of the Search feature's 'engine'. Any revisions to the Index Server would require pre-implementation research and analysis. Preliminary analysis and peer reports indicate small to minimal gains in the site's Search functionality could potentially be provided by customizing the Index Server.

- d. ***Migration to Commerce Server 2000*** (the upgrade for SiteServer Commerce Edition) may or may not improve your site's Search functionality. Initial analysis of migration feasibility indicates a complex migration.
  - e. At a minimum, implement Option 3 below.
2. **The Search feature should include Departments and Customer Service terms in addition to Products.** Many of your site visitors use the Search feature to look for departments such as Women's or Children's Clothing, and even to search for specific information such as employment opportunities. However your current search feature returns no results for such searches, since searches are restricted to Products. Options to address this deficiency are the same as for Option 1 above, as well as the near-term fix recommended below.
3. **The Search feature on your site needs more a descriptive error/'no results' message to assist users.** The current error/'no results' message does nothing to assist customers in finding what they seek. It does not indicate possible ways to improve the search or otherwise direct the user on other options to find what they seek. At a minimum, the 'no results' message should be changed immediately to the following:
- "We're sorry, but we couldn't find any products matching '*your keyword*'. To help you find what you're looking for, please keep these tips in mind:
- If you're looking for a particular brand such as Nike, please use our Brands drop-down menu on the left, or visit one of our Concept Shops by clicking on a logo on the right.
  - If you're looking for a department such as 'women's ski clothes', please search for a specific product using a more specific term, such as 'ski pants'. Once you find the products you seek, you will see which items are for men, women, or children.
  - For all Customer Service information, such as our privacy and return policies, please visit our [Customer Service](#) page." (*link to Customer Service page in style of site's hyperlinks*)

**Other Benchmarks for E-Commerce Success (from Boston Consulting Group, Feb. '01)**

Here are some additional metrics by which RetailerA can measure the performance of its e-commerce effort:

- Customer acquisition cost: no more than \$20 to \$30
- Inbound customer contacts per order: 0.4
- On-time fulfillment: at least 95%
- Completely filled orders: at least 95%
- Returns as a percent of sales: no more than 3%.

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## 2. MARKETING PERFORMANCE ANALYSIS

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This section provides information on some of your site marketing and advertising initiatives, such as how visitors are finding your Web site and what advertising or brand-names they're clicking after they're on your site.

Keep in mind that the top 10 major search engines and directories account for more than 90% of Web traffic, and this fact is supported by your site traffic metrics. Therefore you can safely focus your search-engine optimization strategies solely for those top 10 search engines, and forget the promotional come-ons that promise to submit your site to '4,000 search engines'.

### MARKETING ANALYSIS 1: REFERRERS & SEARCH ENGINES

The Referrer section of your site activity report shows what Web sites and search engines are referring visitors to your Web site.

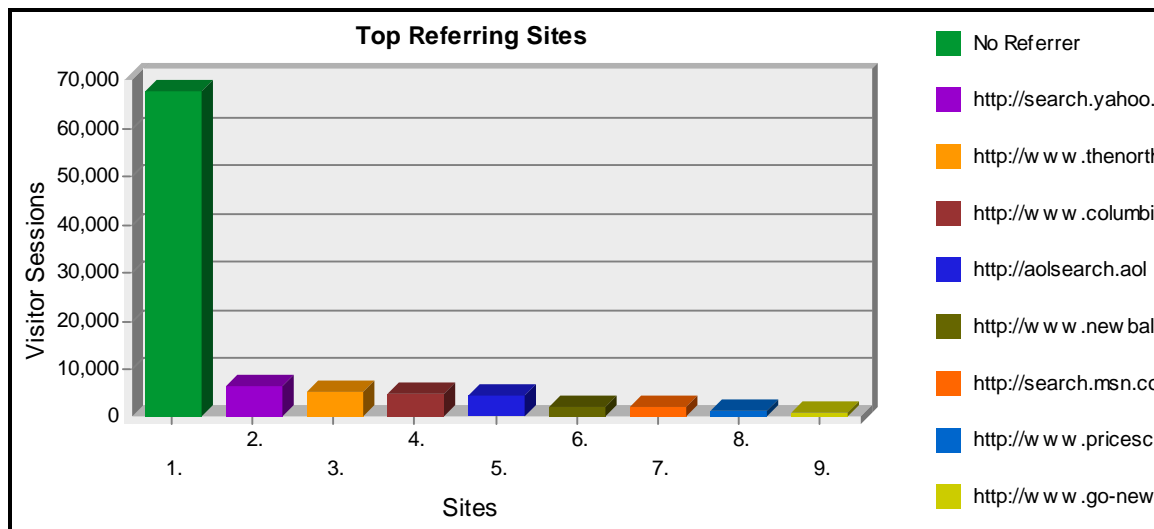
#### RELEVANCE

- Referrer information is central to effective Web site marketing, since the proper use of search engines and affiliate/link partnerships is key to a successful Web site. These are also two of the most cost-effective online marketing tools available to you.
- Use this information to identify the most valuable sources of your referrals. "Most valuable" means more than just who is sending you the most visitors. You want qualified referrals that are actively shopping on your site.
- Visit some or all of your referring Web sites and see how they're displaying the link to your site. Don't be afraid to ask the referrer for improvements in accompanying text or link placement (you might even want to send along some cordial comments for 'minor improvements' in your link or description).

#### FINDINGS

##### *Top Referring Sites*

This section identifies the domain names or numeric IP addresses with links to the site.



Top Referring Sites				
	Site		Visitor Sessions	% of all Visitor Sessions
1	No Referrer	<p><b>The majority of your site visitors show “no referrer”, indicating visitors who accessed your site by typing your URL directly into their browser, or via a saved bookmark. However, don’t forget that some of these visitors may have first found your site previously via a search engine (or vendor) referral.</b></p>	67,804	58%
2	NameRemoved		6,646	5.6%
3	NameRemoved		5,504	4.6%
4	NameRemoved		4,970	4.2%
5	NameRemoved		4,453	3.8%
6	NameRemoved		2,358	2.0%
7	NameRemoved		2,357	2.0%
8	NameRemoved		1,206	1.0%
9	NameRemoved		1,176	1.0%
10	NameRemoved		1,098	.93%
11	NameRemoved		1,037	.93%
12	NameRemoved		1,030	.92%
13	NameRemoved		760	.64%
14	NameRemoved		748	.63%
15	NameRemoved		742	.63%
16	NameRemoved		636	.54%
17	NameRemoved		619	.52%
18	NameRemoved		596	.50%
19	NameRemoved		467	.39%
20	NameRemoved		365	.31%
<b>Subtotal for the Referring Sites Above</b>				<b>104,572</b>
<b>Total for the Log File</b>				<b>117,497</b>

**KEY**

- (s) = Search engine/ comparative shopping engine
- (v) = Vendor

**Unaccounted for traffic sources = 11%**

***Search Engines vs. Vendor Referrals***

This table compares your figures for search engine referrals with referrals from your vendors/other Web sites; note that referrals such as from the NameRemoved Café Bicycle Team (row 15 in the table above) were classified as vendors, although they are in fact RetailerA-supported clubs:

Figure	No. of Referrals	% of Referrals	% of ALL Visitors (incl. 'no referrer')
Total Number of Referrals (all sources EXCEPT 'no referrer')	36,768	100%	n/a
Total No. of Search Engine <sup>7</sup> Referrals	19,059	51.8%	18.2%
Total No. of Vendor/Other Web Site Referrals	17,709	48.2%	16.9%

**Almost as many of your site visitors reach your site from your vendors as from search engines and comparative shopping engines like pricescan.com. In terms of pure numbers, however, chances are your marketing ROI is better from traffic referred by your vendors—qualified traffic referred for free is hard to beat!**

<sup>7</sup> The following sites from the Top Referring Sites table were categorized as Search engines and includes some comparison-shopping and regional-info sites: Yahoo, AOLSearch, MSN Search, Pricescan.com, Go-NewYorkCity.com, Overture (search engine placement service provider), AltaVista, Dogpile, and Netscape Search. All other referral sources from this table (excluding No Referrer) were categorized as vendor/other referrers. The Top Referring Sites table indicates referrer category.

## Top Referring URLs

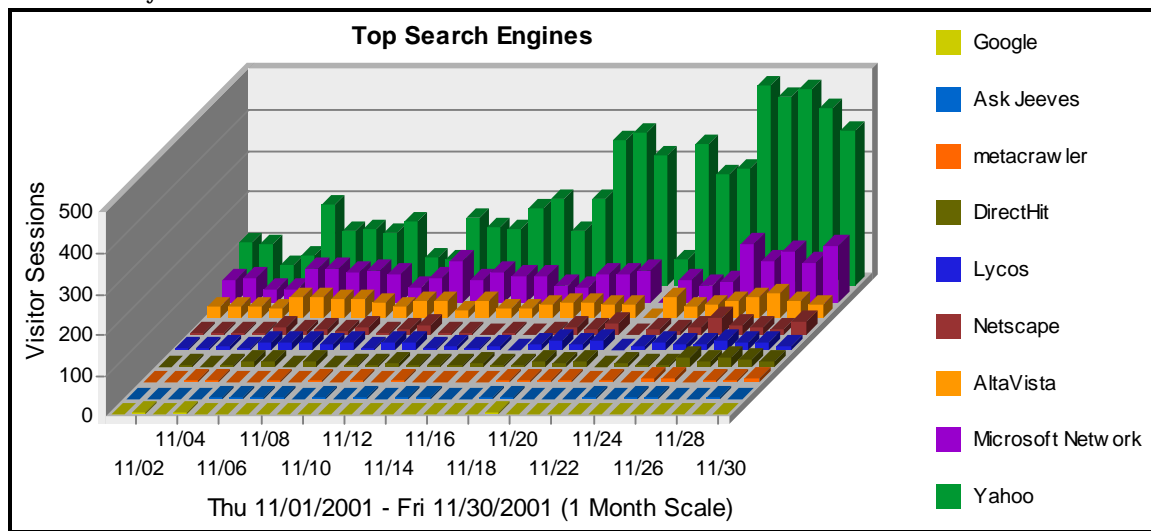
This section provides the full URLs of the sites with links to the site.

**\*DATA REMOVED TO PROTECT THE INNOCENT\***

You can usually use this information to visit the specific page on which a link leading people to your Web site appears. Don't be shy about asking for better placement or descriptive text!

## 1B: Top Search Engines

The graphic illustrates the first-time visitor sessions initiated by searches from each search engine. The first table identifies which search engines referred visitors to the site the most often. Note that each search may contain several keywords. The second table identifies the main keywords or phrases used to find your site.



Top Search Engines			
	Engines	Searches	% of Total
1	Yahoo	11,181	53.77%
2	Microsoft Network	4,188	20.14%
3	AltaVista	2,147	10.32%
4	Netscape	817	3.92%
5	Lycos		
6	DirectHit		
7	metacrawler		
8	Ask Jeeves		
9	Google		
10	dogpile		
11	MegaSpider		
12	Excite		
13	GoTo		
14	HotBot		
15	InfoSeek		
16	InfoSpace		
Total of Searches for the Engines Above		20,791	100%
Total of Searches for the Log File		20,791	100%

**Yahoo alone is responsible for over 50% of all Web surfers that come to your site via a search engine. In fact a review of your WebTrends reports over the past year shows that Yahoo has consistently been one of your main referral sources overall, as it is for many consumer Web sites. And Overture is currently responsible for the bulk of this Yahoo traffic. However, Overture's contract with Yahoo ends this year (2002), and Yahoo is expected to start its own pay-per-click program. RetailerA will have to make some marketing decisions accordingly: Whether to pursue both Yahoo and Overture-network paid search-engine placement, placement on only one of the services, or no paid placement at all.**

## Top Search Phrases

This table identifies phrases which led the most visitors to the site (regardless of the search engine).

Top Search Phrases			
	Phrases	Phrases found	% of Total
1	nike	4,137	19.89%
2	RetailerA sports	2,541	12.22%
3	north face	1,415	6.8%
4	the north face	1,338	6.43%
5	colu	1,231	5.92%
6	Retailer	1,204	5.79%
7	Retailer	714	3.43%
8	n	678	3.26%
9	s	565	2.71%
10	s	529	2.54%
11	s	424	2.03%
12	a	333	1.6%
13	s	314	1.51%
14	n	299	1.43%
15	g	243	1.16%
16	F	225	1.08%
17	s	222	1.06%
18	n	213	1.02%
19	E	193	0.92%
20	a	137	0.65%
Total Found for the Phrases Above		<b>16,955</b>	<b>81.54%</b>
Total of Phrases Found in the Log File		<b>20,791</b>	<b>100%</b>

The prominence of “RetailerA” and similar keywords/phrases indicates excellent name recognition.

Brand-names clearly make up the majority of the search phrases used to find your site at search engines. More generic search terms, such as ‘ski jackets’, are less common. If any popular brand names or product categories are *missing* from this list, you may need to add these terms to your site’s meta-tags to make sure your site’s showing up in relevant searches.

## Comparison of Top Search Phrases & Your Meta-Tags

When a Web surfer enters a phrase or keyword into a search engine, why does your Web site appear in the results when it does? In addition to the payments that are required for almost any business to obtain a listing on many leading search engines, it is also because the phrases or keywords the user entered match the same phrases and keywords you have on your Web site—especially in some special ‘hidden’ text known as meta-tags. Your meta-tags make up the bulk of what search engines ‘read’ and consider most important on your Web site (note that this is not necessarily true for directory-based listings such as Yahoo and the Open Directory Project listings). Search engines’ automated indexing tools—spiders or Web crawlers—then scan other parts of your page to ensure that your site content matches what your meta-tags say the site contains.

While there are entire Web sites and companies devoted solely to the arcana of the “searchies” and their frequently-changing indexing methods, there are some basic rules that can help you ensure your site achieves higher ranking in search results when people are shopping on the Internet for sports equipment:

- **Brevity is best.** Some leading search engines today won’t look at more than **seven** of your meta-tagged keywords, or even only the **first 100 characters** (i.e. including all spaces, commas, etc.). The same is true for your meta-description, which is also often limited to displaying only the first 200 characters. Therefore those first seven words of your meta-tags are the most important. These meta-tag character restrictions are noted in all meta-tags referenced in this section in **bold**.
- **Don’t forget to look for what’s missing.** Are there any products that sell well in your store or online that you don’t see represented on the list of the search phrases used to find your site? Chances are those words are missing from your meta-tags. Make sure your most important keywords appear high up in your meta-tags, and accept the fact that you cannot

add every possible product or brand name to your meta-tags (especially since many search engines read only the first couple hundred characters of your meta-tags only, as noted above).

- **Change your meta-tags occasionally as necessary and request a re-indexing of your site.** Remember that those first 10 meta-tagged keywords are the most important for your site. For B2CWebsite.com, a good strategy might be to change your meta-tags at least twice a year, to suit the seasonal changes in what equipment people are shopping for. If you change your meta-tags, you also have to visit the major search engines and request a re-indexing of your site (at least those sites that still accept sites for free), or, in the case of paid search placement, ensure that your site is indexed or categorized on a suitable schedule. Changing meta-tags and re-submitting more than bi-monthly at a maximum is neither effective nor recommended.

*\*Top Search Phrases & Your Meta Tag Comparison Table Removed\**

#### RECOMMENDATIONS

Change meta-tags as follows:

*\*DATA REMOVED TO PROTECT THE INNOCENT\**

## MARKETING ANALYSIS 2: OVERTURE INITIATIVE PERFORMANCE

### RELEVANCE

This section provides you the objective information you need to perform return-on-investment (ROI) analysis on your Overture site marketing initiative. You can also compare the information in this section with the campaign performance metrics provided to you by Overture, which is a performance-based marketing program (pay-per-click—or PPC—search engine placement).

Sites or search engines displaying Overture's listings include America Online, Yahoo, Lycos, Hotbot, AltaVista, Netscape, InfoSpace, Dogpile, and Excite. However, not all traffic referred from these search engines can be attributed to your paid Overture placement; some of this traffic may be attributable to your site being listed search engines in their “non-paid” capacity as a Web resource—most search engines still accept both paid and unpaid listings, although leading search engines such as Yahoo are switching to a paid-submission-only policy for commercial/business listings.

Notably, Overture's partnership with Yahoo ends in June of this year (2002). Since Yahoo is likely to roll out their own PPC system, RetailerA will have to decide on how to spend its marketing dollars accordingly: On both Overture and Yahoo placement, on one or the other, or on no paid placement at all. The information in this section provides many of the metrics required to make this decision.

Please note that a full ROI analysis on RetailerA's Overture Online Marketing Campaign is beyond the scope of the Web server log analysis undertaken here. WebGunForHire can perform a full ROI analysis of your Overture campaign if additional metrics are generated via database and AS400 queries for analysis of sales and database data. This section provides a brief analysis of marketing campaign performance based on available information.

The results of your Overture advertising initiative can be tracked in terms of:

- How many visitors are being referred to your site via your pay-per-click Overture links,
- How long those visitors are staying on your site, and
- Whether or not those visitors are ‘qualified shoppers’ (i.e. ‘ready to buy’ customers).

### FINDINGS

Overture-referred visitors were directed to a special Web page designed to make it easier to track this traffic. An analysis of your Web server logs indicates that:

- **At least 13,840 visitors sessions started at your site on your Overture gateway page in November 2001. This may represent some 10,000-13,000 unique visitors.**
- **The Overture ‘gateway’ page accounts for the first page seen for at least 14% or so of your site visit sessions (Top Entry Pages). Of the 14% or so of site visitors entering your site through your Overture Home page, some 6.5% do not click through further,** versus the 80% that don't click through of the 52% of your site visitors that enter your site from your ‘regular’ Home page. This may indicate that your Overture-referred traffic is more qualified than your other site visitors.
- **The Overture Home page ‘gateway page’ to your site is the third most-requested page on your site, and the average view time on this page is about 30 seconds longer than for your ‘regular’ Home page (1 minute 30 seconds vs. around 1 minute).** Combined with the fact that your Overture-referred visitors have a better click-through rate on your site as well, this may indicate that in fact **your Overture-referred traffic appears to be more qualified than your average site traffic.**

- **A paid placement program has effectively become a requirement for your site to be listed on leading search engines for brand name searches, which are the most popular way to find your site.** Pay-per-click placement for brand names and similar popular commercial search keywords will likely increase in importance across the major search engines, as the majority of search engines continue to adopt paid listings for commercial sites.

### ***Supporting Metrics***

***\*DATA REMOVED TO PROTECT THE INNOCENT\****

#### RECOMMENDATIONS

- Based on the importance of being listed on the first 2-3 pages of search results for brand-name searches, **WebGunForHire recommends that RetailerA continue enrollment in a paid-placement program that provides such placement (pay-per-click or otherwise).**
- The Overture network of paid search engine listings appears to have driven some sizable traffic to your Web site, and these visitors appear to visit more pages on your site and spend more time on your site than your average site visitors. However, Yahoo has consistently been the single search engine responsible for the majority of your search-engine referred traffic (typical for many B2C sites). While Yahoo is currently part of the Overture network, that contract ends this June and Yahoo is expected to roll out their own PPC system. Based on this consideration, **WebGunForHire recommends that priority be given to acquiring placement on the Yahoo search engine should Yahoo choose to leave the Overture network.**

## MARKETING ANALYSIS 3: ON-SITE ADVERTISING PERFORMANCE

### ON-SITE ADVERTISING CLICKS

This section identifies the frequency with which viewed ads were clicked on.

***\*DATA REMOVED TO PROTECT THE INNOCENT\****

### RECOMMENDATIONS

- **Based on the popularity/click-through performance of your NameRemoved images, the NameRemoved image should probably NOT be at the top of the list, where it currently resides, but nearer the bottom,** since it receives such poor click-through. It would probably perform as poorly 'below the fold' (below the level of immediate visibility on the user's screen without scrolling), while better-performing images such as NameRemoved should be assured of placement 'above the fold' (on an 800x600 monitor display, the NameRemoved image falls 'below the fold'). Otherwise, your top-performing images are already placed well for maximum effectiveness, at least for fall/winter sports equipment shopping.

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### 3. VISITOR PATH ANALYSIS

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#### RELEVANCE

Visitor path analysis is the study of how your site visitors use your Web site. Visitor path analysis can indicate which Web pages on your site are attracting (or repelling) visitors, and how visitors are interacting with your site.

#### FINDINGS

##### MOST REQUESTED PAGES: CONCLUSIONS

- **Not surprisingly, your Home page is the most ‘popular’ in terms of being the most requested (97%).** Your Home page has an average view time of a little over 60 seconds—on the high side of average Web page view times, which range from 45-55 seconds per page viewed, according to recent Web audience measurements by leading traffic reporting companies such as Nielsen//NetRatings.<sup>8</sup>
- **Your Home page and Overture home page are responsible for over 80% of your most requested pages; the rest are generally each under 1%.**

##### TOP ENTRY PAGES: CONCLUSIONS

Top-entry pages identify the first page viewed when a visitor sees your site. The main caveat in these figures is that the percentages shown refer to the total number of visitor sessions that started “with a valid Document Type”. If the session started on a document with a different type (such as a graphic or sound file), the file is not counted as an Entry Page, and the session is not counted in the total. And no Web server logs hits in perfect chronological order, so a hit to a GIF file can appear in the log before the hit to the ASP page that refers to this GIF. In such cases, however, the log analysis software discounts the entire session. Additionally, filters were set to eliminate RetailerA Site Manager pages from the log file analysis, since these pages represent staff, not customer, use of the site.

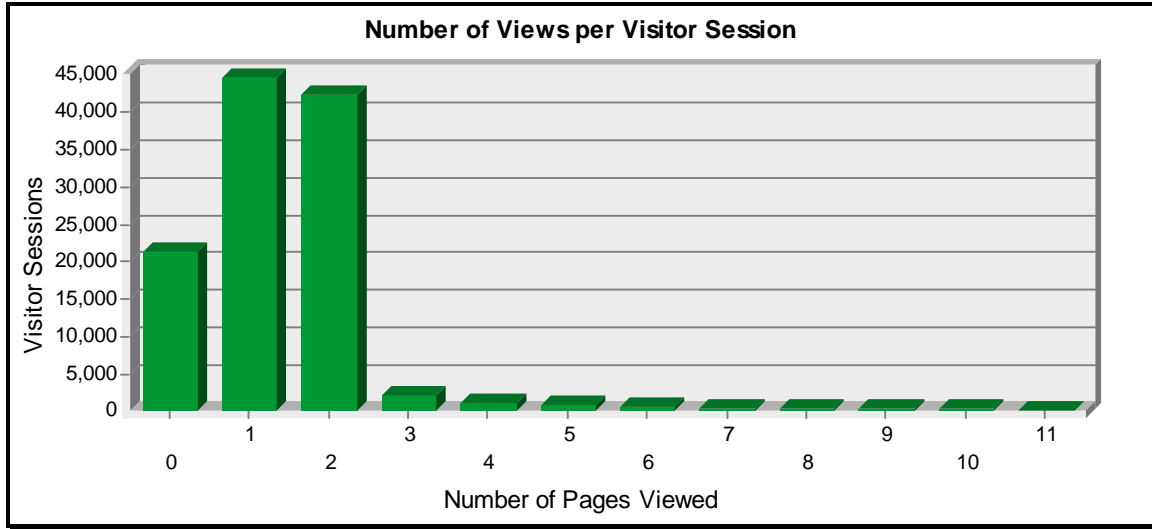
- **Your Home page accounts for a little over 65% of your top entry pages.** This indicates that many visitors do not enter your site through your ‘front door’ (your Home page). Over 52% of your site visitors enter your site via your ‘standard’ Home page. The Overture ‘gateway’ Home page is the first page seen for another 14% or so of your site visitors.
- **The NameRemoved Shop accounts for another 7% or so of your top entry pages, followed by your NameRemoved Shop, with around 5.5% of your top entry pages. Your NameRemoved Shop accounts for almost another 3%.** These figures show visitors referred via the links these vendors have to their Shop on your site.
- **Nearly 1.5% of your top entry pages appear to be for a saved Search Result page.** Some of this may be attributable to early holiday shoppers saving specific pages.

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<sup>8</sup> ‘Duration of a Page viewed’ figure from “Average Web Usage, Month of December 2001, U.S.” Nielsen//NetRatings (<http://pm.netratings.com/nnpm/owa/NRpublicreports.usagemonthly>).

## NUMBER OF VIEWS PER VISITOR SESSION

This section shows the number and percentages of visits and page views versus the number of pages viewed. Zero Number of Pages Viewed indicates visitor sessions that access only non-page items, such as image files (e.g. GIF, JPG).



Number of Pages Viewed per Visit			
Number of Pages Viewed		Number of Visits	% of Total Visits
0 pages	<p><b>Two possible problems are indicated here:</b></p> <ul style="list-style-type: none"> <li>Nearly 20% of your site visits result in less than a full page ever being viewed. This means that users are either giving up before a single page fully loads, or some of your images are being used on another Web site(s) while being served up from your server. This traffic could also indicate any banner ads or logos you host on your server but have placed on other sites.</li> <li>Almost 40% of your site visitors view only 1 page on your site before leaving; another 36% view only 2 pages.</li> </ul>	21,439	18.24%
1 page		44,642	37.99%
2 pages		42,334	36.02%
3 pages		2,264	1.92%
4 pages		1,016	0.86%
5 pages		920	0.78%
6 pages		678	0.57%
7 pages		436	0.37%
8 pages		401	0.34%
9 pages		308	0.26%
10 pages		254	0.21%
11 or more p		2,805	0.19%
<b>Totals</b>		<b>117,497</b>	<b>100%</b>

## SINGLE ACCESS PAGES: CONCLUSIONS

This section identifies the pages on the site that visitors access and exit without viewing any other page. These figures refer to the total number of visitor sessions that started with a valid Document Type. If the session started on a document with a different type (such as a graphic or sound file), the file is not counted as a Single Access Page, and the session is not counted in the total (same caveat as for Top Entry Pages). Totals in this section correlate findings noted above as well.

- **Nearly 80% of the 52% of your site visitors that enter your site via your Home page do not click in to your site further. Of the 14% or so of site visitors entering your site through your Overture Home page, some 6.5% do not click through further.**
- **Of the 7% of your site visitors that enter via The NameRemoved Shop, some .94% of them enter your site no further than that first Shop page.**

- **Of the 5.5% of your site visitors that enter your site via your NameRemoved Shop, some .64% go no further than that first page.**
- **Of the 3% of your site visitors that enter your site via your NameRemoved Shop, some .48% click no further.**
- **Other single access pages include what appear to be saved Search pages (.92%).**

#### RECOMMENDATIONS

- Your general site traffic patterns are in line with average B2C site traffic statistics. Around 40% of your site visitors view only one page on your site; this figure appears not unusual for B2C sites, where such visits often account for 60% or more of a site's visitor sessions, according to anecdotal evidence found during research<sup>9</sup>. Nevertheless you should **continue to ensure that your Home page provides compelling content to lure your site visitors further into your site**, by offering attractive ads, products, and special promotions or other offers to entice shoppers into your store.
- **While your Home page is unquestionably one of the most important pages on your site, many of your site visitors enter via other pages as well.** There are a couple of lessons to keep in mind here:
  - First, despite the primacy of your Home page you mustn't 'overload' it by putting everything on it available. It appears that too many of your site visitors leave your site without visiting other pages, and slow download times on consumer dial-up connections may be one reason for this (slow download times confirmed in testing noted in section on General Performance).
  - Your site already appears to be optimized for 'alternate entry points'. The unified look-and-feel of the site and the consistent navigation elements (both store navigation such as departments and service navigation such as cart and Customer Service) are of great assistance to the many site visitors entering your site through the avenue of their choice.
- While slow page-loading times probably account for at least some of the 20% of your site visitors that view less than a full page on your site, other questions should be answered as well:
  - **Are you hosting any banners or other images on your site that you have placed on other Web sites? If not, your Web server logs should be further analyzed for possible abuse of your image files, such as a Web site pulling an image on their site from your server.**

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<sup>9</sup> No figures could be found on standard site performance ratios or site click-throughs at any of the leading Web metric sources, including Nielsen//NetRatings, CyberAtlas (internet.com), MediaMetrix, and useit.com. Anecdotal evidence found in Understanding Internet Traffic, p. 53 (HiSoftware Publishing, Concord, NH, 2001).

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## 4. VISITOR PROFILING

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### RELEVANCE

Visitor profiling allows you to better understand who your Web site visitors are. Metrics in this category indicate things such as when most visitors access your site, and what kind of Web browser and operating system they use.

### FINDINGS

Your Web site usage data indicates the following about your Web site visitors:

- **The heaviest-traffic day of the week on your Web site in November was Thursday.** Mondays are also one of your highest-traffic days. Saturdays usually see the lowest traffic on your site.
- **The heaviest-traffic hours on your site are usually from 11 a.m.-noon EST on weekdays, and about 60% of your site visitors visit your site during work hours** (9 a.m.-5 p.m. EST, the other 40% during non-work hours). This indicates that the majority of your customers probably visit the site while at work, standard for most B2C Web sites.<sup>10</sup>
- **Nearly 60% of your site visitors in November were ‘return visitors’,** or visitors that had a tracking cookie on their machine upon a subsequent visit. This is a very good returnee rate.
- **Almost 80% of your site visitors use the Microsoft Internet Explorer Web browser, and another 19% or so use a Netscape or Netscape-based browser.** This means that your Web site should be optimized for the Internet Explorer browser (if any), or at least built to display optimally in that browser, as it currently is.
- **The majority of your site visitors--over 80%--are visiting your site using a ‘Wintel’ PC** (i.e. an Intel Pentium-class processor-based PC with a Windows operating system). In fact over 70% of your site visitors are using a more recent operating system, such as Windows 98 or 2000.

Other visitor profiling information provided by your WebTrends reports, such as Top Visitors and Top Organizations, has been rendered all but meaningless due to current ISP network configurations. In the Top Visitors table, for example, AOL proxy servers account for the top 17 spots in that table. This is because of the maze of proxy servers used by a single AOL user. Other, more accurate figures indicate a majority of business-hour accesses, and AOL is almost solely a consumer ISP not used by most businesses. Based on available information, your site audience access is apportioned approximately 60/40 between work- and home-based access.

Additionally, your Web server should be set to perform ‘reverse DNS look-ups’ in order to provide the most accurate information on Most Active Organizations. However, performing reverse DNS lookups would severely impact your Web server performance and bandwidth volume and is therefore strongly discouraged.

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<sup>10</sup> According to the Nielsen//NetRatings Holiday eCommerce Index, online shopping at work accounts for nearly **half** of all shopping activity (Source: Nielsen/NetRatings, Dec. 19, 2001; [http://www.Nielsen//NetRatings.com/pr/pr\\_011219\\_holiday.pdf](http://www.Nielsen//NetRatings.com/pr/pr_011219_holiday.pdf)).

## Summary of Activity for Report Period

This section outlines general server activity, comparing the level of activity on weekdays and weekends. The Average Number of Visitors on Weekdays are the averages for each individual week day. The Average Number of Visitors for Weekends groups Saturday and Sunday together. Values in the table do not include erred hits.

Summary of Activity for Report Period	
Average Number of Visitor Sessions per day on Weekdays	4,237
Average Number of Visitor Sessions for the entire Weekend	6,068
Most Active Day of the Week	Thu
Least Active Day of the Week	Sat
Most Active Day Ever	November 15, 2001
Least Active Day Ever	November 03, 2001
Most Active Hour of the Day	11:00-11:59
Least Active Hour of the Day	04:00-04:59
Total Visitors during Work Hours (8:00am-5:00pm)	57.74% of total hits
Total Visitors during After Hours (5:01pm-7:59am)	42.25% of total hits

### RECOMMENDATIONS

- Your site audience appears to represent an attractive target demographic, at least based on a reading of your audience's computing platforms, which indicate more recent (and more expensive) operating systems and Web browsers. Most marketing experts and leading advertisers recommend that you focus your marketing efforts on your current market. In other words, focus on appealing to your site's current audience and demographic, not a new audience and demographic. In sum, The New York Times seems like a better 'fit' for your ads than The New York Post, since Times readers more closely fit your apparent site demographic. Similarly, your higher-end products and vendors might drive more sales on your site than lower-end products and vendors--i.e. you'll probably sell more North Face jackets than Frisbees, even if both items are next to each other on the Home page.

## 5. ERROR ANALYSIS

### RELEVANCE

This section can help you analyze the technical reliability and performance of your Web site and supporting infrastructure. Your Web site poses some particular problems to tracking in this area, however: Your Dynamic Pages & Forms section, for example, indicates that over 99% of all “forms submitted” on your site failed. However WebTrends considers almost every page on your site a dynamic page, since WebTrends considers anything with Post command as a dynamic page, and almost every page on your site has a ‘post’ command since your site is based in ASP (Active Server Pages), a dynamic scripting language. It’s clear that if such a high percentage of pages were failing, the site wouldn’t be “working” anywhere near as well as it is.

### FINDINGS

#### TECHNICAL STATISTICS AND ANALYSIS

This table shows the total number of hits for the site, how many were successful, how many failed, and calculates the percentage of hits that failed. It can help in determining the reliability of the site.

Technical Statistics and Analysis	
Total Hits	1,570,512
Successful Hits	1,547,334
Failed Hits	23,178
Failed Hits as Percent	1.47%
Cached Hits	166,731
Cached Hits as Percent	10.61%

**Less than 1.5% of all hits to your site fail.**

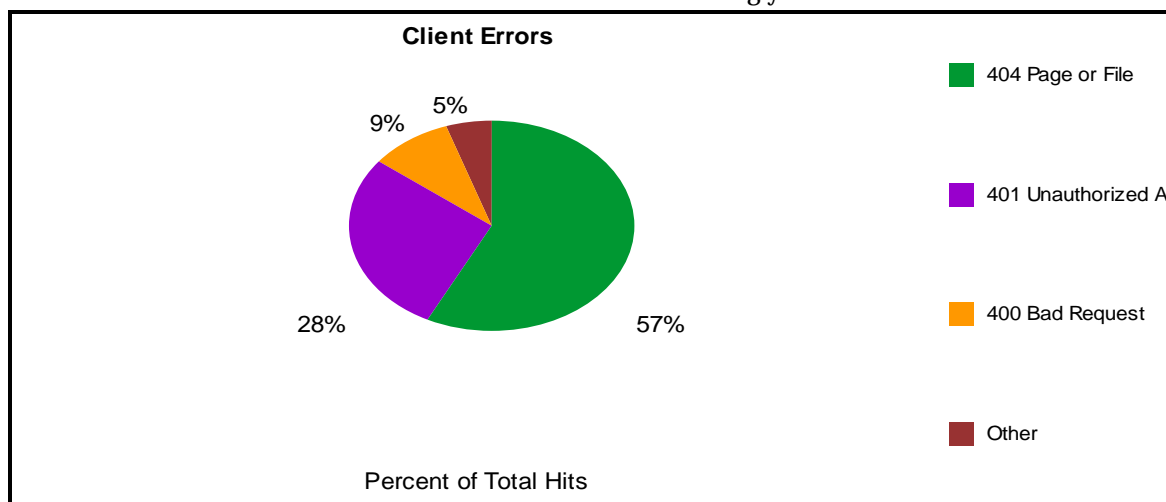
#### Technical Statistics and Analysis - Help Card

? This table shows the total number of hits for the site, how many were successful, how many failed, and calculates the percentage of hits that failed. Failed hits are hits where a server or client error occurred. Cached hits are those where the page was found in the cache of the browser, so the server did not need to transfer the file.

💡 This section is useful in determining the reliability of the site.

#### CLIENT ERRORS

This section identifies the error codes from the browsers accessing your server.



<b>Client Errors</b>		
<b>Error</b>	<b>Hits</b>	<b>% of Failed Hits</b>
404 Page or File Not Found	11,129	57.39%
401 Unauthorized Access	5,468	28.2%
400 Bad Request	1,809	9.32%
403 Forbidden Access	925	4.77%
405 Incomplete / Undefined	59	0.3%
<b>Total</b>	<b>19,390</b>	<b>100%</b>

**Errors Defined & Possible Causes:**

- **404 Page or File Not Found:** Typically, this error occurs when a requested Web page or image file can not be found on the server. As shown in the table below, on the RetailerA site these errors are in fact related almost solely to missing images. In other words, the user may never see the dreaded '404-File Not Found' message page, but instead a missing image mark.
- **401 Unauthorized Access:** This error usually occurs when the Web server will not allow this request to be completed due to security settings related to a user name and password. On your site, this error could be encountered if a non-logged-on user attempts Checkout, or if the user tries to delete parts of the URL in the browser address bar to attempt to view other portions of the site, or if a site manager log-on fails. Other instances may well indicate hacking or cracking attempts on the server.
- **400 Bad request:** The Web server could not understand the request due to bad syntax. Possible reasons for this error include if the user tries to change or delete parts of the URL in the browser address bar to attempt to view other portions of the site. Other instances may well indicate hacking or cracking attempts on the server.
- **403 Forbidden Access:** The Web server will not allow this HTTP request to be completed due to security settings. This error could be encountered if a non-logged-on user attempts Checkout, or if the user tries to change or delete parts of the URL in the browser address bar to attempt to view other portions of the site. Other instances may well indicate hacking or cracking attempts on the server.
- **405 Incomplete/Undefined:** This error may occur if there is a configuration problem between the Web browser client and the Web server.

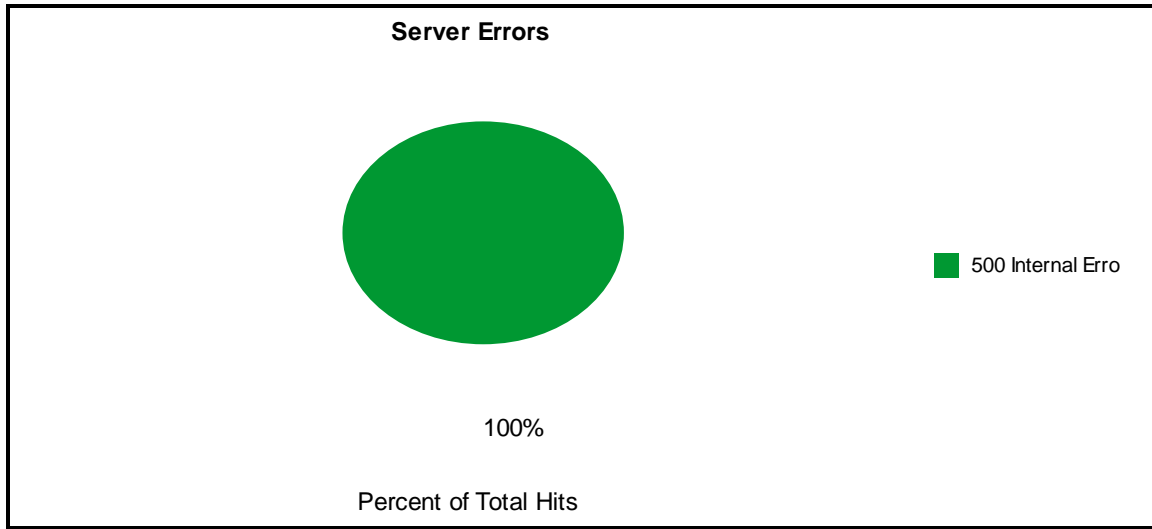
PAGE NOT FOUND (404) ERRORS

This section identifies pages that returned "Page Not Found" (404) errors on the server.

***\*DATA REMOVED TO PROTECT THE INNOCENT\****

## SERVER ERRORS

This section identifies by type the errors which occurred on the server.



Server Errors		
Error	Hits	% of Total
500 Internal Error	3,788	100%
Total	3,788	100%

According to this, only 3,788 hits to your server resulted in '500 Internal Errors'. Considering that your server logged over 1,547,334 successful hits during this time period, this means that less than one-quarter of 1% (.24%) of all hits to your server resulted in 500-type internal error.

## RECOMMENDATIONS

Although the metrics in this section indicate few errors on your site overall, there have been some performance problems with your Production Web server since site launch. In particular, high-traffic times appeared to be 'maxing out' the server in terms of its ability to process transactions and page requests. Other sources indicated occasional problems that may not be readily apparent from Web server log analysis, such as field reports on apparent site outages as well as a review of performance-related server logs.

- HostingProvider recently upgraded both the Web and database servers that host your Web site, by adding an additional processor to the Web server, and doubling the amount of memory in both servers. **HostingProvider and RetailerA should continue to monitor site performance after the upgrade to see if reported errors decrease and if other possible performance improvements are realized, particularly during high-traffic times.** Additional metrics required to accurately measure server performance include information not found in your Web server logs, such as data in your server performance logs, as well as field reports on apparent site or server outages.
- Another option is to **build a fully redundant (mirrored) server array.** This is the **only** way to ensure that your site remains live even in case of a server failure. This would involve setting up and configuring both a new mirrored Web and database server, ensuring data consistency between server arrays, and implementing fail-over routing between the arrays. A substantial financial investment would be required by RetailerA to cover the costs of hardware, software, and configuration time.