



ClickTracks Professional Suite - Whitepaper



Introduction

Organizations evaluating higher-end web analytics products must consider many factors in deciding which product best meets their needs. These factors go well beyond a simple comparison of reports and base license prices. Other considerations include scalability, robustness, and flexibility of reporting; the extensibility of the application; organizational use; network environment requirements and commensurate costs; and other hidden costs, such as implementation, training, and professional services.

No single web analytics program completely addresses all of these factors. Those that come the closest are usually considered “enterprise” class applications, with prices in the upper five figure range or higher.

ClickTracks Professional was designed to meet the key needs of organizations that require a powerful web analytics solution. However, enterprise-level features have been judiciously and carefully implemented in such a way that ClickTracks Professional imposes neither the large initial investment nor the corresponding back-end cost that accompanies other enterprise-class applications.

Who Needs ClickTracks Professional?

Relatively few websites warrant the full scope of functionality of enterprise-class web analytics programs. ClickTracks Professional was designed for the following types of customers:

Corporate websites

Corporate websites tend to have high volumes of traffic and dedicated staff working on specific aspects of their online marketing efforts. ClickTracks Professional provides the performance and scalability these companies require, as well as organizational access controls that ensure people get the information they need.

Ecommerce websites

ClickTracks’ revenue-tracking features are exceptionally accurate by industry standards. Combined with ClickTracks’ campaign tracking and innovative segmentation features, return on advertising spend (ROAS, aka ROI) can be analyzed on multiple axes with pinpoint accuracy.

High-volume websites

The Pro Processor includes a powerful analysis engine that processes log files on a scheduled basis, so users can view reports quickly and easily, whenever and wherever they need to. ClickTracks Professional also provides multiple ways to improve performance of ad hoc analysis at the desktop.

Agencies and ISPs

For companies providing web analytics for many customers' websites, Professional is the right choice. ClickTracks offers professional products specifically designed to meet the needs of agencies and ISPs, with multiple means of report distribution as well as our unique cobranded client application.

User Needs

For the types of companies that require the **Professional** product, certain needs are essential.

Asynchronous processing of data

Analyzing the log files of websites that serve high volumes of traffic is a CPU- and RAM-intensive operation, no matter how efficient the analysis engine is. It simply isn't practical to process such datasets on a desktop computer while trying to work on that computer. This is especially true when trying to track revenue, which requires following unique visitors over time. Without such tracking, any attempt at ROAS analysis is futile, as latent conversions usually constitute the vast majority of revenue.

Tracking unique visitors requires tremendous amounts of analysis—far more than is practical to perform on an end user's desktop computer. For this type of analysis, it is necessary to use an asynchronous dataset processor, which can be set to run on a schedule, acquiring raw data (log files) and analyzing data on the scale of millions of visitors, with no human intervention. This system must then be able to make the processed data—ready to view—available to end users whenever they need it. This is a core function of the Pro Processor.

Centralized dataset definition

Web analytics is inherently complex, and the data that are ultimately displayed in reports are subject to a wide range of assumptions. How are sessions defined? Which parameters define pages? What are the key conversion pages? Should certain IP addresses be excluded from the analysis? If these settings are left to individual users to define, a team will soon find itself looking at divergent results.

The ClickTracks Professional product includes a component called the Configuration Client, in which key options and settings are established for the entire team, thus helping the team stay in synch. Furthermore, this tool allows an administrator to set up campaign tracking or establish funnel definitions for the entire team, thus reducing duplicated efforts.

Distribution of datasets and reports

High-volume websites often have a team of concerned personnel—web developers, online marketing specialists, marketing managers, executives, and so forth—each with different needs in terms of the type of information required and the form in which to view it.

The Pro Processor's Reporting Engine handles the distribution of data so that individuals receive only the information they need—no more and no less—in just the format they need it.

Website archiving

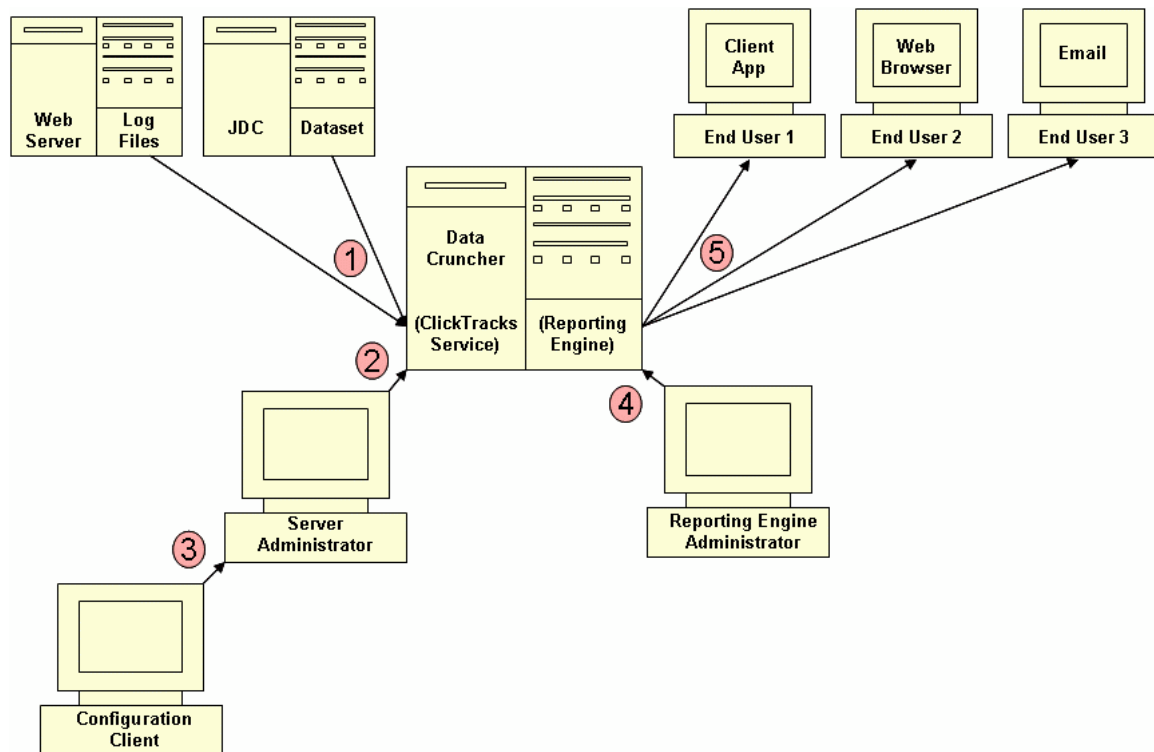
Comparative analysis is a key technique used to evaluate the performance of marketing efforts. Two powerful forms of comparative analysis are A/B splits and time splits. The Reporting Engine makes these types of analyses possible through its site archiving feature. With this feature, an entire website can be captured at a certain point in time and then later displayed in the browser

view of the ClickTracks Navigation Report. Thus, visitor behavior can be viewed simultaneously on two different versions of the same website.

Architecture

All of the above needs are met by ClickTracks Professional. Performing all of these functions requires an underlying architecture that is both robust and easy to use.

The following diagram depicts the anatomy of the ClickTracks Professional suite:



At the heart of the system are two services: the ClickTracks Processing Engine and the ClickTracks Reporting Engine.

The Processing Engine

The ClickTracks Processing Engine service is responsible for acquiring raw data (in the form of log files) from a web server or the local file system. It then processes and analyzes that data. The service performs this function on a scheduled basis that can run as frequently as every 15 minutes, so reports can be viewed almost in real-time.

The Processing Engine Administrator

The Processing Engine service is controlled through an application called the Processing Engine Administrator. This tool provides a user-friendly interface to define

- the make-up of websites to be analyzed.
- the source of the raw data for those websites.
- the schedule for processing data.

It also provides feedback and diagnostics on the functioning of the Processing Engine service. Finally, it serves as an access point for the other components of the Pro Processor: the Reporting Engine and the Configuration Client.

The Reporting Engine

The Reporting Engine service runs in the background. It is primarily designed to serve data to end users in various forms. It includes an advanced user and group management system that controls access to datasets and reports based on specified permissions. It acts as a web server, serving preanalyzed reports to web browsers, as well as pre-analyzed reports or complete datasets to ClickTracks Pro Clients. It interfaces with mail servers, sending reports in the form of HTML emails on a scheduled basis. Finally, the Reporting Engine controls the site archiving process.

The Reporting Engine Administrator

The Reporting Engine Administrator is a web-based user interface through which the functions of the Reporting Engine service can be controlled. Users with administrator privileges can set up user and group accounts and set their permissions, schedule archives and emailing of reports, and adjust the settings of the service itself.

Configuration Client

The Configuration Client, accessible from the Processing Engine Administrator, is the equivalent of the end-user client application and is used for viewing and interacting with reports. This version of the client acts as a global configuration tool. Any changes made within the Configuration Client, including changes to settings, creation of labels (e.g., segmentation), import of campaign data, revenue tracking setup, or definition of funnels, will be reflected in browser-based and emailed reports and then propagated to the Pro Clients.

Pro Client

The final component of the Professional Suite is the Pro Client, an application installed on end users' desktops. ClickTracks Professional includes an unlimited number of Pro Clients.

The Pro Client can operate in two distinct modes: Instant Reports and Custom Analysis. In Instant Reports, the user can quickly view pre-rendered reports. Though users can view a wide range of predetermined date ranges for each report, they are limited in their ability to interact with the data. However, with a click of the mouse, they can shift into Custom Analysis, causing the raw data to be downloaded from the Reporting Engine, at which point they can do any type of ad hoc analysis they please, including creating visitor labels.

Capabilities

Based on the architecture described above, ClickTracks Professional is capable of performing many functions not available in ClickTracks' other applications (as well as many functions not available in any other application at all). Following is a description of these key capabilities.

Create datasets with multiple sub-domains

With ClickTracks Professional, a user can define a website as consisting of multiple domains. This goes beyond simply aliasing domains so that all domains are considered to be equivalent of one another. Rather, websites can maintain their individual identity but still be included within the same dataset and analyzed relative to each other.

Create datasets from load-balanced servers

ClickTracks Professional is capable of analyzing data from load-balanced servers. Regardless of the method of load balancing, the Pro Processor can analyze logs from multiple servers, seamlessly knitting together visitor sessions into data that are as accurate as if only one log source had been used.

Multithreaded processing

If the computer running ClickTracks Professional has a multiprocessor CPU, the Pro Processor can take advantage of this hardware configuration to provide more performance and usability. When multiple datasets have been defined, the Processing Engine will be able to process as many datasets simultaneously as there are processors on the CPU. Furthermore, this configuration allows a user to manage datasets with the Configuration Client while the Processing Engine processes a different dataset.

Cookie tracking

Tracking unique visitors requires a persistent cookie to uniquely identify visitors to a website. Assuming a persistent cookie is set on the website, ClickTracks Professional can track a given visitor across multiple sessions on the site. Although ClickTracks does not attempt to generate reports that specifically show the behavior of individual users, this cookie tracking data is essential for analyzing conversions from marketing ads to sales. It is a relatively rare for a visitor to click on a search engine ad and then complete a transaction on the same visit. Much more often, visitors leave the site and come back another day to actually complete the transaction. Only by tracking unique visitors over time can the real conversions for these ads be established. As noted above, cookie tracking is a very memory- and processor-intensive operation that is only possible with an asynchronous processing system, such as ClickTracks Professional.

URL pruning

Some content management systems (CMS) generate URLs that are not “web analytics friendly.” For example, a CMS may add a session ID to the path of every URL, thereby making the URLs unique from session to session and thus disrupting the ability to count statistics, such as Most Visited Pages. The Pro Processor provides the ability to prune out such disrupting strings from URLs.

User and group management

As noted above, the Reporting Engine allows the establishment of users and groups of users. Permission to view specific datasets, and even specific reports within datasets, can be granted at the user or group level. An explicit Allow or Deny setting ensures that users will get precisely the reports they are supposed to see, even if there are conflicts between user and group permissions. The permissions control access to reports, regardless of the end users’ client—whether it is a web browser, email client, or the ClickTracks Pro Client.

The Reporting Engine integrates with LDAP servers, so ClickTracks Professional can seamlessly integrate into an enterprise workflow.

Diagnostics

The Processing Engine provides extensive diagnostics data to troubleshoot any issues that may arise in acquiring, processing, or distributing data. Available diagnostics include a complete session record of all activity related to acquiring and processing logs, FTP logs to troubleshoot connection issues, and specific error messages relating to issues with log files.

Site archiving

The site archiving function of the Reporting Engine literally captures the entire website as it exists at the point when the archive is run. Files that are stored include the following:

- HTML*
- Images
- JavaScript
- CSS
- Flash animations

* Scripted pages, such as PHP, ASP, JSP, and so on, are rendered by the archiver and saved as static HTML pages.

The files are compressed to a surprisingly small size, but settings allow for archiving just the top n pages or pages with at least n visits for total control over disk space usage. Archives can be set to run on a regular schedule or as a one-time operation.

Browser-based reports

The Reporting Engine has a built-in web server that can serve ClickTracks reports in the form of web pages. The reports are available via authenticated login only, and users will be able to view only those datasets and reports for which they have been granted access through the Reporting Engine Administrator.

Reports can be served via both HTTP and HTTPS protocols. They may be served over the default port 80 (non-secure) or port 443 (secure). Other alternative ports may be assigned so that another web server using the default ports can run on the same computer.

Although it is not possible to perform ad hoc analysis (creating labels, adjusting options, etc.) on reports served over the web, there is a wide range of predetermined date ranges that a user can view for any given report:

- All dates
- Today
- Yesterday
- This week total
- This week by day
- Last week total
- Last week by day
- This month total
- This month by week
- This month by day
- Last month total
- Last month by week
- Last month by day
- This quarter total
- This quarter by week
- This quarter by month
- Last quarter total
- Last quarter by week
- Last quarter by month
- This year total
- This year by month
- Last 12 months by month

Emailed reports

In addition to being viewable in a web browser, reports can also be sent to individuals or groups via email. Emailed reports are sent as HTML documents that include all the same data as the browser-based reports. Emailed reports are set up from within the Reporting Engine, either as a one-time or a regularly scheduled event. Though only one report can be sent in each email event (due to file size limitations), there is no limit to the number of scheduled email events that can be set up.

More reports

ClickTracks Professional includes all of the reports available in the Analyzer/Optimizer products, such as

- Navigation Report
- Search Report (including Keyword Ranking Report)
- Site Overview Report
- Campaign Report
- What's Changed Report
- Robot Report

(For more information on ClickTracks features, see <http://www.clicktracks.com/features.php>.)

Following are the reporting and segmentation features that are only available in the Professional Product:

Revenue/ROI Tracking

Because accurate tracking of revenue to advertising sources requires tracking unique visitors with persistent cookies (see Cookie Tracking, above), only ClickTracks Professional includes revenue-tracking capabilities. Professional enables revenue tracking by assigned values of goal pages or by passing sales totals via URL parameters. With Revenue Tracking enabled, the Campaign Report and Search Report are both augmented with several metrics, including

- Number of visitors that generated sales
- Total revenue
- Average revenue per visitor
- Conversion rate
- Cost per order
- Return on advertising spend

In the Campaign Report, these numbers are available on a per campaign basis. In the Search Report, they are broken down to the keyword level.

Fraud Report

The Fraud Report automatically detects campaigns with indications of click fraud based on various metrics, including

- Single-page visits
- Short-term visits
- IP addresses
- Country of origin
- Funnel goal pages
- Revenue

Campaigns that deviate from internally established normal results are flagged as suspicious. Forensic reports, including details of every session resulting from the campaign, can then be exported into a Microsoft Excel spreadsheet for deeper investigation.

Whether traffic from campaigns turns out to be the result of fraud or simply poor-quality visitors, this report will provide the data necessary to make changes to the campaign, whether that means altering it or dropping it completely.

Funnel Report

ClickTracks' revolutionary Funnel Report accomplishes the objective that competitor funnels only attempt—to show which pages and groups of pages lead to progression through a website toward identified goal pages. The multidimensional funnel allows for an unlimited number of funnel stages, with each defined by an unlimited number of pages or page groups. ClickTracks' unique color-coding technique provides a highly visual picture of which page groups are most successful at leading customers toward the desired destination.

Extending the multidimensional aspect of the funnels, visitor segmentation is applied directly to the funnel. This reveals whether certain pages work better for certain types of visitors. An unlimited number of funnels can be defined, making this the most complete funnel application available.

A/B Splits and Time Splits

The originator of the website overlay report, ClickTracks continues to lead in this type of visual reporting by applying A/B splits and time splits to the Navigation Report. Made possible by the Site Archiver (see Site Archiving, above), splits allow you to see two different versions of the website simultaneously, with visitor behavior statistics overlaying both versions.

The Navigation Report can show two different versions of the same page at the same time (A/B split) or the same page as it existed at two different points in time (time split). Either way, only ClickTracks allows you to see, simultaneously, the difference in visitor behavior on the same screen.

More Segmentation Power

The Professional product provides considerably more power and flexibility in defining visitor segments. More segmentation criteria are available, including visits at certain times of day or days of the week, visitors with certain cookies or parameters, and visitors from specific regions.

Visitors to particular pages or sections of a site can be identified with more sophisticated matching criteria, including regular expressions to define the pages these visitors see.

An advanced tool to combine labels with Boolean logic further extends the labeling power in Professional.

These advanced labeling features make it possible to target very specific groups of visitors.

System Requirements

Setting up ClickTracks Professional can be a very straightforward process when installed in the proper environment. Following are guidelines to help establish the most efficient environment with the least expense.

Operating system

The Pro Processor runs only on Windows 2000, 2003, and XP. It will also run on Windows 2000 Server and Windows 2003 server. It is important to note that although the Reporting Engine serves data to Pro Clients and web browsers, it does **not** need to run on a server operating system, such as Windows 2003 Server. All server functions are handled by the application itself. In fact, because of the additional security features built into Windows 2003 Server, additional setup will probably be required to run ClickTracks Professional in that environment.

The Pro Processor typically runs on a Windows XP computer within the company firewall. It need not be located at a data center, though for some high-volume websites, it may be worth the effort to do so. Locating the Pro Processor at the same data center as the web servers saves the considerable bandwidth required to download log files from the web servers to the Pro Processor. It may also increase the speed at which reports and datasets can be downloaded from the Pro Processor to clients, due to the high bandwidth capacity of data centers.

Note: *Under no circumstances should the Pro Processor run on the same computer as the web server. Data analysis will severely impact the performance of a server trying to serve web pages.*

Processor

The Pro Processor is certainly CPU intensive. During the batch run, it will consume 100% of CPU resources. Therefore, fast CPUs will definitely improve performance. ClickTracks is compiled for 64-bit instruction set chips from AMD and Intel. A rule of thumb for batch processing is 10 minutes per 1 million visitors (not page views) on a 3Ghz P4. This figure does not expand linearly as time increases. In other words, 1 million visitors over 6 months is faster to calculate than 1 million visitors over 1 week. This is because detailed per-day/per-week breakdown is available for the more recent data, with summary information available for earlier time periods.

The size of the CPU cache and front side bus (FSB) has a marked effect on the performance. We recommend 800Mhz FSB and 2MB cache. The Pentium 4 900 series is particularly good.

RAM

The Pro Processor is RAM hungry. The code is optimized to consume RAM and avoid accessing the hard drive, since RAM is fast and disks are slow. The minimum requirement is 1GB, while 2GB is recommended for larger sites. For processors with 800Mhz FSB, fast RAM is recommended to take advantage of the performance.

Disk storage

The Pro Processor stores all data for all datasets across time. Therefore, it requires enough storage for the entire dataset as well as for swap files and local analysis calculations. A good rule of thumb is 150MB for 1 million page views per dataset. This figure could double for sites that have very large numbers of distinct URLs or with very large numbers of cookies being set.

Access speed for disk storage is not critical because data are sorted while still in memory and sit linearly on the disk. The transfer speed is also less critical, because the data are compressed anyway. SCSI disks are not needed. A RAID controller can help, because it can make expansion of capacity easier. Using a NAS box is often a good solution, because the transfer speed is not critical. An external Firewire-based RAID box could be the best compromise of cost, convenience, and expandability.

System requirements summary

CPU	Yes. Newer P4 with 800FSB
RAM	Yes. 1GB or 2GB DDR400
Large Hard Drive	Yes. Use RAID if > 200GB needed
Server OS	No. XP is fine

Pricing Model

ClickTracks Professional provides outstanding value. The product provides many features of an enterprise-class web analytics application at a fraction of the cost.

The base price of \$3,995 covers the cost of the Pro Processor running against a single web server. Additional load-balanced web servers can be added for \$1,700 each. Thus, two load-balanced web servers would cost $\$3,995 + \$1,700 = \$5,695$. Back-end database servers and front-end proxy servers are not counted in these server counts. However, consolidating web logs from multiple servers onto one server is a violation of the license agreement.

An unlimited number of Pro Clients may be installed with a single Pro Processor license.

Annual maintenance contracts, including email, chat, and telephone support, along with all feature upgrades, are available for 20% of the total cost of the license.

ClickTracks Professional is easier to set up and configure than other web analytics programs of comparable power. However, during the initial setup process, it is usually cost-effective for customers to use professional services provided by ClickTracks. ClickTracks provides a wide range of professional services, including jump-start packages, tune-up packages, and various training modules, as well as hourly consulting services.

For more information on ClickTracks Professional Services, see <http://www.clicktracks.com/services/>.

A typical purchase of ClickTracks Professional, including support and upgrades package and professional services, is well under the five-figure mark.

Summary

ClickTracks Professional is a robust web analytics solution that meets the needs of companies running high-volume, strategically important, and/or revenue-generating websites. It provides the essential functionality of enterprise-class applications for a fraction of the cost.