Web Analytics
Key Metrics and KPIs

Version 1.0

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Introduction
In the interests of discussion clarity and Web site reporting standardization, this document defines key metrics and Key Performance Indicators (KPIs) for Web Analytics.

This document consists of four parts:
1. <u>Framework Overview</u> posits a vocabulary for describing Web metrics
2. <u>Baseline Metrics</u> lists fundamental counts and ratios
3. <u>KPIs</u> lists KPIs by both Site Type and Process Type
4. <u>Definitions</u> contains a one-page description for each metric

Besides listing key metrics and KPIs, this document encourages readers, when discussing and debating KPIs, to adopt a two-step process of (1) clearly defining the numerator and denominator and (2) then defining the ratio. In conversational terms, the discussion should be something like, "First, do we understand and trust the base counts? Are they defined? Good, OK, let's discuss the ratio calculation that is based on these metrics. Is that correctly defined and relevant to the business?"

By using this two-step process, we hope to avoid the problem that has bedeviled Web analytics in the past — using KPIs where the ratio is well-understood but the underlying counts are not. An example would be Unique Visitors per Day, where Unique Visitors could mean (in order of increasing accuracy) (1) unique visitors identified via IP address or some other simple heuristic, (2) unique visitors identified via persistent cookies, (3) unique visitors identified via persistent cookies with adjustments for multiple browser usage by individuals and multiple individuals using a single browser, or (4) unique visitors that have logged in. It is exactly this type of confusion that the Web Analytics Association was founded to eliminate.

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Framework Overview
There are three types of Web analytics metrics: counts, ratios, and KPIs:
- Count — the most basic unit of measure; a single number, not a ratio. Often a whole number (Visits = 12,398), but not necessarily (Total Sales = $52,126.37.).
- Ratio — typically, a count divided by a count, although a ratio can use either a count or a ratio in the numerator or denominator. (An example of a ratio fabricated from ratios is "Stickiness.") Usually, it is not a whole number. Because it's a ratio, "per" is typically in the name, such as "Page Views per Visit." A ratio's definition defines the ratio itself, as well as any underlying metrics.
- KPI (Key Performance Indicator) — while a KPI can be either a count or a ratio, it is frequently a ratio. While basic counts and ratios can be used by all Web site types, a KPI is infused with business strategy — hence the term, "Key" — and therefore the set of appropriate KPIs typically differs between site and process types.

A metric can apply to three different universes:
- Aggregate — Total site traffic for a defined period of time.
- Segmented — A subset of the site traffic for a defined period of time, filtered in some way to gain greater analytical insight: e.g., by campaign (e-mail, banner, PPC, affiliate), by visitor type (new vs. returning, repeat buyers, high value), by referrer.
- Individual — Activity of a single Web visitor for a defined period of time.

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Baseline Metrics

Basic Counts

- a. Visits — IAB definition
- b. Unique Browsers — IAB definition of "Unique Browsers"
- c. Unique Visitors — IAB definition of "Unique Visitors" determined by the persistent cookie method and affiliated adjustments
- d. Unique Authenticated Visitors — IAB definition of "Unique Visitors" determined via the registration method
- e. Page Views — IAB definition of "Page Impressions"
- f. Exits — Site exits, counted by site inactivity for more than 30 minutes
- g. Clicks — IAB definition
- h. Impressions — IAB definition of "Ad Impressions," expanded to include content impressions/personalization not generated by an ad server
- i. Hits — Total number of server requests serviced by the server

Basic Ratios

- j. Page Views per Visit
- k. Page Exit Ratio (Page Exits/Page Visits)
- l. Conversion (overall and step conversion or micro-conversions)
- m. Call to Action Conversion
- n. Searches per Search Visit
- o. Search Return Exits
- p. Drivers to Offline Contact Methods

KPIs by Site Type

Content Sites

1. **Advertising-based content sites, such as ESPN.** Note: A portion of ESPN's site is subscription-based; however, most content is free and advertising-based.
   - Visits per month (or quarter or week).
   - Page views per visit. This is the depth of site exploration. How engaged are visitors, etc.
   - Visit duration (don't trust averages in most analytics tools, consider using mean)
   - On Site Advertising click ratio.
   - Ratio of new to returning visitors.
   - Recency
   - Frequency

2. **Subscription-based content sites, such as WSJ.com.**
   - Conversion of non-subscribers to subscribers. (overall and step conversion)
   - Active subscriber base (based on different time increments – daily, weekly, monthly, etc depending on model)
   - Average subscription length.
   - Renew Conversion
   - ROI based on conversion type

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Customer Service

- Average cost-per-service option and average cost per touch overall.
  - Call center
  - E-mail
  - Online chat
  - Online self-service
- Percent of support touches served successfully online.
- Drivers to other support methods from the site
- Onsite search effectiveness.
  - Searches per search visit.
  - Exits from the search return page.
- Survey results.
  - Exit surveys scores
  - Page ratings/surveys scores

Commerce

- Overall purchase conversion.
- Step-by-step purchase conversion
- Average order size/items (AOS)
- Average order value (AOV)
- Analysis of purchase funnel defectors.
- Effect on offline sales.
  - Unique toll-free numbers
  - Store locator
  - Order printout
- First-time versus returning buyers – look at behaviors, conversions, revenue, etc.
- Recency, frequency, monetary value
- Lifetime value
- Affinity analysis (product and site)

Lead Generation

- Overall conversion
- Step-by-step conversion analysis via the registration process
- Conversion by campaigns.
- Drivers to registration process.
- Analysis of registration process dropouts.
- Conversion of leads to actual customers
- Value per lead based on conversion – can be different based on different types of leads

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KPIs by Process

Reach

- Unique Authenticated Visitors — IAB definition of Unique Visitors
- Unique Visitors — IAB definition of Unique Browsers
- Visits — IAB definition
- Page Impressions — IAB definition
- Clicks — IAB definition

Acquisition

- Number of New Visitors — For that time period, the number of "new" visitors, based on cookies or a heuristic (complement to Number of Returning Visitors).
- Average Number of Visits per Visitor — Visits/Visitors
- Average Number of Page Views per Visit — Page Impressions/Visits
- Average Pages Viewed per Visitor — Page Impressions/Visitors
- Percent of Visits Under One Minute — Visits under 60 seconds/All Visits
- Percent of Visits That Are 1 Page — One-page Visits/All Visits

Conversion

- Cost per Conversion — Cost of Campaign/Conversions
- Average Order Value — Total Revenue/Total Orders
- Sales per Visitor — Gross Sales/Visitors
- Search Results to No Results — Results Found/No Results Found

Retention

- Number of Returning Visitors — For that time period, the number of "returning" visitors, based on cookies or a heuristic. (complement to Number of New Visitors).
- Frequency of Visit — (Days between 1st and 2nd visits) + (days between N-1 and N visits)/N-1
- Recency of Visit — Days since last visit
- Stickiness — Frequency x Duration x Site Reach (Frequency = Number of Visits in Time Period/Number of Unique Visitors in Time Period; Duration = Total Amount of Time Spent Viewing All Pages/ Number of Unique Visitors in Time Period; Site Reach = Number of Unique Visitors in Time Period/Total Number of Unique Users)

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Definitions

Conversion Rate

Type:　　　　Ratio

Universe:　　Aggregate, Segmented, Individual

Calculation: Percentage of a Visitor type who complete a multi-step conversion process with a defined beginning and end within 30 minutes, whether it be signing up for a newsletter, buying a product online, or some other desired outcome.

Comments: This is the umbrella definition, to be used as a template for defining more specific and actionable conversion ratios.

This definition requires that Visitor be defined (Visitors, Unique Visitors, or Unique Authenticated Visitors), as well as the Start of the process, the End of the process, and all intervening steps. If the End page can be reached from the Start page via multiple paths, each different path would have a different conversion rate. A company may wish to come up with an Overall Conversion Rate that averages these different conversion scenarios together, but the individual conversion rates need to be defined first.

Conversion Rate is useful for tracking changes in process completions over time, but virtually impossible to compare across sites or within a single site. For example, a Web site may have two identical conversion processes, with the same Start page, End page, and intervening steps. However, if one part of the site sells new products and the other sells add-ons that cannot be purchased anywhere else, the add-on portion of the site will probably have a higher conversion rate, due solely to the business context and not due to the design of the Web site.

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Hits

Type: Count

Universe: Aggregate

Calculation: Total number of server requests serviced by the server

Comments: Used for server sizing and system planning, Hits is a useful indicator of server load, but not useful for understanding visitor behavior.

Assuming a specific Web page has 15 items on it (graphics, HTML) and there are no intervening caching mechanisms, loading the page would count as 15 hits. Since there are often intervening caches (e.g., proxy servers, browser caches), a server may not even see the page request, or may be asked for only some of the items. However, since the purpose of this metric is to measure server load, the fact that some of the browser requests are "lost" is not an issue.

Unique Authenticated Visitors

Type: Count

Universe: Aggregate, Segmented

Calculation: The number of actual individual people, within a designated reporting timeframe, with activity consisting of one or more visits to a site or the delivery of pushed content. A unique authenticated visitor can include both: (1) an actual individual that accessed a site, or (2) an actual individual that is pushed content and or ads such as e-mail, newsletters, interstitials and pop-under ads. Each individual is counted only once in the unique authenticated visitor measure for the reporting period.

The unique authenticated visitor measure is filtered for robotic activity prior to reporting and these measures are determined using a registration-based method. For sites that qualify for and use unique registration to determine visits (using a user-id and password) or recipients of pushed content, this information can be used to determine unique authenticated visitors across a reporting period. Best efforts should be made to avoid multiple counting of single users registered more than once as well as multiple users using the same registration.

Comments: Unique Authenticated Visitor differs from Unique Visitor in that it counts an authenticated person, rather than inferring that it's a person. For example, if John Smith logged into a site twice within a week, once from work and once from home, he would be counted as one Unique Authenticated Visitor but possibly two Unique Visitors, depending on the technology used.

If a Web site, due to its business model, does not require a logon and password, it cannot use the Unique Authenticated Visitor metric. Therefore, although more accurate than Unique Visitor, Unique Authenticated Visitor has less applicability than its counterpart. Unique Authenticated Visitor should be used in place of Unique Visitor when it is possible to do so — within intranets and extranets, for example.

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Unique Browsers

Type: Count

Universe: Aggregate, Segmented

Calculation: The number of inferred individual people, within a designated reporting timeframe, with activity consisting of one or more visits to a site or the delivery of pushed content, that is not adjusted for multiple browser usage by individuals and multiple individuals using a single browser. A Unique Browser can include both: (1) an inferred individual that accessed a site, or (2) an inferred individual that is pushed content and or ads such as e-mail, newsletters, interstitials and pop-under ads. Each individual is counted only once in the Unique Browser measure for the reporting period.

The Unique Browser measure is filtered for robotic activity prior to reporting and these measures are determined using a cookie-based method. For sites that utilize the unique cookie approach to determine visits or recipients of pushed content, this information can be used as a basis to determine unique users across a reporting period. The use of persistent cookies is generally necessary for this measure.

Comments: Unique Browser can be thought of as an "unadjusted" Unique Visitor metric. Note that Unique Visitor should be used in place of Unique Browser when it is possible to do so.

Unique Visitors

Type: Count

Universe: Aggregate, Segmented

Calculation: The number of inferred individual people, within a designated reporting timeframe, with activity consisting of one or more visits to a site or the delivery of pushed content. A unique visitor can include both: (1) an inferred individual that accessed a site, or (2) an inferred individual that is pushed content and or ads such as e-mail, newsletters, interstitials and pop-under ads. Each individual is counted only once in the unique visitor measure for the reporting period.

The unique visitor measure is filtered for robotic activity prior to reporting and these measures are determined using a cookie-based method. For sites that utilize the unique cookie approach to determine visits or recipients of pushed content, this information can be used as a basis to determine unique users across a reporting period. The use of persistent cookies is generally necessary for this measure. An algorithm is used to estimate the number of unique users on the basis of the number of unique cookies. The algorithm should adjust the unique cookie number therefore accounting for multiple browser usage by individuals and multiple individuals using a single browser.

Comments: Unique Authenticated Visitor differs from Unique Authenticated Visitor in that it infers a person, rather than guaranteeing the visitor is a person by requiring a logon. For example, if John Smith visited a site twice within a week, once from work and once from home, he would be counted as two Unique Visitors (two different PCs, two different cookies, perhaps two different IP addresses) even though he is one person.

Although it is less accurate than Unique Authenticated Visitor, Unique Visitor does not require a logon and so has much wider applicability than its counterpart. Note that Unique Authenticated Visitor should be used in place of Unique Visitor when it is possible to do so — within intranets and extranets, for example.

Impression

Type: Count

Universe: Aggregate, Segmented

Calculation: The delivery of an advertisement or promotion to a site visitor. The IAB defines Impressions as: A measurement of responses from an ad delivery system to an ad request from the user's browser, which is filtered from robotic activity and is recorded at a point as late as possible in the process of delivery of the creative material to the user's browser -- therefore closest to actual opportunity to see by the user.

Two methods are used to deliver ad content to the user – server-initiated and client-initiated. Server initiated ad counting uses the site's web content server for making requests, formatting and re-directing content. Client-initiated ad counting relies on the user's browser to perform these activities.

For organizations that use a server-initiated ad counting method, counting should occur subsequent to the ad response at either the site's ad server or the web content server or later in the process. For organizations using a client-initiated ad counting method, counting should occur at the publisher's ad server or third-party ad server, subsequent to the ad request, or later, in the process. (Based on definition of Impressions from IAB)

Comments: Impressions can be based on advertisements on a third party site trying to drive traffic to another site. Or impressions can be based on the display of calls to action on a site trying to drive visitors to take action and move to another page on the site.

Example: An online retailer may circulate promos for a pair of shoes on the homepage of their site. Just as an advertiser would want to measure the effectiveness of their banners on a third party site, it is important to track on site promos as well. The retailer may use that space on the home page or throughout the site to circulate 8 different promotions featuring the same or different products. To measure the effectiveness of those calls to action, it is important to understand how many people viewed each call to action promo, how many clicked upon it and how many ultimately performed the desired behavior – a successful checkout of the product featured in this example.

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Exits

Type: Count

Universe: Aggregate, Segmented

Calculation: The departure of a visitor from the site, signifying the end of a visit session. An exit is based on inactivity for a period of 30 minutes. Every visitor ultimately exits the site at some point. Most often exits are reported at a page level.

The use of cookies to track visit sessions or another reliable visit session method is necessary to accurately track this measure.

Comments: If a visitor is using multiple browsers an exit is based on inactivity from all browsers for 30 minutes. Closing an individual browser on the site while others remain in use on the site would not lead to an exit.