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The Reality

BY 2020

AVG. INTERNET USER 1.5 GB OF TRAFFIC / DAY

AUTONOMOUS VEHICLES 4 TB OF DATA / DAY

CONNECTED AIRPLANE 5 TB OF DATA / DAY

SMART FACTORY 1 PB OF DATA / DAY

CLOUD VIDEO PROVIDERS 750 PB OF VIDEO / DAY

THE COMING FLOOD OF DATA
Yottabyte
Our digital universe today
250 trillion DVDs

Exabyte
1 EB of data created on the Internet everyday

Petabyte
CERN Large Hadron Collider generates 1PB per second

Zettabyte
1.3 ZB of network traffic by 2016

Gigabyte

Terabyte

Megabyte
Internet Of Things

Information

Generation

11/6/2017

Brontobyte

$10^{27}$

Geopbyte

Zettabyte

$10^{21}$

Yottabyte

Petabyte

$10^{15}$

Exabyte

Internet=1EB/day

Gigabyte

$10^9$

Terabyte

Facebook=500TB/day

Megabyte

$10^6$
World Wide Web

Diverse groups and needs

Device ownership & connectivity

Internet of Things

Information Highways
Web analytics can help us …
Definition

The Web Analytics Association (WAA) defines Web Analytics as:

The measurement, collection, analysis, and reporting of Internet data for the purposes of understanding and optimizing Web usage

(http://www.webanalyticsassociation.org/)
Web analytics

- *Web analytics* is the study of visitor, navigation, and traffic patterns to determine the success of a given website.
- Focusing only on the amount of traffic might only be helpful in evaluating your bandwidth usage and server’s capabilities, which is not its only purpose.
- *Web analytics* focuses on in-depth comparison of available visitor data, referral data, and site navigation patterns.
- It also tells us the amount of traffic we receive over any specified period of time.
The Process

- Web Analytics is not a technology to produce reports; it is a process that proposes a virtuous cycle for website optimization.

- Framework includes the following 5 steps:
  - Define Goals
  - Build KPIs
  - Collect Data
  - Analyze Data
  - Implement changes
1. Defining Goals

**Why does your website exist?**

- Each website will have its own unique answer to that question: for example, an ecommerce website should sell products, a support website should answer the customers’ questions, and a news website should provide content.

- Website objectives are critical input that will assist in identifying the metrics that help to measure the success of this channel.

- *The website should be accounted for in the same way as other business expenses; investment must be measured against ROI.*
2. Defining Metrics (KPIs)

- Measuring goal achievement can be done by creating **Key Performance Indicators (KPIs)** that show whether the website is getting closer to its objectives or not.

- There should be an action linked to each KPI proposed for a website.

- Identify the “critical few”: priorities, goals, metrics, KPIs, anything.

- There should be a clear line of sight between the company’s goals and what each level of the organization is solving for.
Attributes for Good KPIs

- Un-complex
- Relevant
- Timely
- Useful
Example of good KPI

- One good example of a great KPI that meets all of the preceding criteria is bounce rate (percentage of single page view visits).
- It is un-complex because it is easy to understand, explain and propagate.
- It is relevant because it identifies where you are wasting marketing dollars and which pages under-perform.
- It is timely because it is a standard in all Web Analytics tools within one click.
- And it is instantly useful because the website owner can look at it and know what needs attention
3. Collecting Data

- Data collection is crucial to analysis results.

- There are four main ways of capturing behavior data from websites.
  - Web logs
  - Java Script tagging
  - Web Beacons
  - Packet sniffing
Web Logs

- Advantages of this method are:
  1. The website owner owns the data (as opposed to JavaScript Tagging below), meaning that the owner has full control over the privacy of the information.
  2. Web logs are available backwards, which enables the website owner to reanalyze past campaigns and reprocess data.
  3. It saves web crawler behavior (crawlers from search engines visit the website to index them and show in search results).
Advantages of this method are:

1. It counts every visit to a website, while log files can be affected by cached pages by the Proxy or the user’s browser, which can send a page to a visitor without registering a log file in the server. The cached information is lost whenever analyzing log files, reducing the accuracy of the customer’s information.

2. The JavaScript is not read by crawlers, which generates high amounts of traffic and are not representative of customers’ behavior. Crawlers can be excluded from the analysis; however, it is a time consuming task, and many of them are not recognizable.

3. The analysis resources are outside the company, i.e., the company does not have to process and save the data internally.
Web Beacons

- A great benefit (and common usage) of web beacons is in tracking customer behavior across different websites.

- It answers questions such as: how are banner ads performing across multiple websites (where they could be seen by the same or different sets of customers)

- Because the same server is collecting the data, reading the cookies and doing the tracking, it is quite easy for advertisers to track, anonymously, the same visitor across multiple sites or different visitors to the same ‘site.’
Packet Sniffing

- Although packet sniffing is very advanced in terms of technology, it is used mostly for multivariate testing.

- Its biggest advantage is that it need not tag pages; all the information goes through the packet sniffer (hardware).
4. Analyzing Data

- To understand the customer behavior from the data, the (web) analyst should follow a few initial steps.
  - Start from the basics
  - Understand traffic sources
  - Act on data, save money
  - Data visualization, site overlay
  - Focus on outcomes
  - Implementing changes, improving actionability
Start from the basics

Any web analytics tool presents a summary report, a group of basic metrics that are available immediately after logging into the tool which are as follows:

1. **Visits**: the number of sessions on your website and number of times someone interacted with your site.
2. **Bounce Rate**: the percentage of single pageview visits (this metric can also have different definitions, such as a visit that last less than 5 seconds).
3. **Page Views number**: the number of pages that were requested in all visits.
4. **Pages/Visit**: how many pages were seen, on average, in each visit.
5. **Average Time on Site**: how long people stayed on the site.
6. **% New Visits**: how many sessions were from people who visited your site for the first time.
Understand traffic sources

- **Direct Traffic** represents visitors that show up on the website by entering the website’s URL or from a bookmark.

- **Referring URLs** are other websites linking to the website being analyzed. These could be a result of banner ads, campaigns, or from blogs interested on your website.

- **Search Engines** (Google, Yahoo!, MSN, Ask, and others) will include both organic and paid (PPC/SEM) traffic.

- **Others** includes campaigns on the website that have been configured accurately, such as: email, direct marketing, etc.
Act on data, save money

- Web analysts should look, initially, for pages with the highest bounce rate: bounce rate measures single page view sessions, un-engaging interactions with the website.
- Pages with a high bounce rate are not delivering on the promise that is driving users to the website.
- The pages in the top ten entry pages report need attention.
- Once those pages are fixed, the website has an increased likelihood that visitors will go deeper into the ‘site, and maybe convert
Data visualization, site overlay

- Numbers, metrics and spreadsheets are still overwhelming for many; they want to see the data visually represented. The ‘site overlay’ report, or ‘click density’ present in most Web Analytics tools, shows the number of clicks on each link on the page.

- Web analysts should look for clusters of heavy clicks, the top two or three most clicked links; then try to reconcile this information against links that s/he wants visitors to click on.
Focus on outcomes

- The Web analyst should ask the following questions to be sure to focus on the right metrics:

1. Visitors are coming to the website, but is it having any impact on the ‘site?

2. If there is an impact on the bottom line, is the website converting enough?

3. What’s selling and what is not? Why is it selling? How much of it?
Implementing changes, Improving actionability

Web analysts should try to get everyone in the organization more excited about using data, make it appealing.

- The recommended approaches to do that are:
  1. Surprise people
  2. Measure impact, not visits
  3. Promote other employees
  4. Use customers and competitors
  5. Involve others
Web Analytics Tools

The Web Analytic tools can be categorized into two types:

➢ Conversion
➢ Usability
Conversion

Conversion rate is the ratio of visitors who convert casual content views or website visits into desired actions based on subtle or direct requests from marketers, advertisers, and content creators.

Some major tools that help assess the conversion rate are:

- Google analytics
- Web Trends
- Compete
- Stat Counter
- Quantcast
Usability

- If a site is usable, it fits its purpose. This typically means that it's convenient to use. Now there are some tools which can be used to assess the usability of a website.
- We have discussed two important usability tools:
  - ClickTale
  - Crazyegg
Conclusion

- The big question is: how can a website manager convince surfers to have most desirable impact on the user?
- **Users** should tell us what to do, not consultants, friends or feelings;
- **Data** and **Feedback** are the place to look for users’ needs.