Mobile Analytics: Introduction

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Abstract — The share of mobile devices in internet traffic has been increasing enormously. Tablet and smart phone sales have already surpassed the Desktop PC and notebook sales. Mobile analytics refers to understanding the needs of the user based on his usage of mobile browsers and mobile apps. The mobile analytics software in existence are designed to help the application developers understand their user base better and eventually help them market to a more concerned audience. In this paper we discuss the fundamentals of mobile analytics, metrics, and current mobile analytics tools.

Keywords — Mobile analytics, Mobile traffic analytics, Data analytics, Google analytics

I. INTRODUCTION

Mobile analytics or mobile traffic analytics helps in the understanding of the services consumed by the mobile subscribers. The rise of mobile data analytics fostered from the availability of vast application data collected by operators as well as dedicated monitoring applications running on the devices. [1] The understanding of mobile traffic is paramount to many fields such as e-commerce, networking, sociology, etc. However, there are many technical challenges that are to be tackled to achieve the full potential of mobile analytics.

Mobile analytics helps us understand the behavioural patterns of mobile website as well as mobile app users. It helps in identifying the key aspects that work best for mobile traffic and help in determining the marketing campaigns for business. It can be broadly classified as mobile web analytics and mobile app analytics. Mobile web analytics refers to accessing online content via mobile web browsers. Mobile app analytics helps us to analyse the usage patterns of a mobile application. Mobile analytics vendors provide the application developers with various metrics which help them understand the requirements of the user better.

II. MOBILE WEB ANALYTICS AND MOBILE APP ANALYTICS

Mobile web analytics refers to accessing online content via mobile web browsers. The website provided may be a specially modified version of the desktop website to cater to the restrictions of mobile devices. Mobile app analytics helps us to analyse the usage patterns of a mobile application. Mobile analytics vendors provide the application developers with statistics such as the age group of most frequent visitors, exit pages, retention rate etc which help them understand the requirements of the user better. Both mobile web analytics and app analytics mainly focus on measuring user engagement and conversion metrics. Mobile web analytics and mobile app analytics are closely related to one another.

III. MOBILE ANALYTICS METRICS

Mobile traffic analysis can be done using several metrics that can be collected as part of a dedicated monitoring application or using the data provided by the mobile service providers. There are a vast number of metrics that can be obtained from mobile traffic. We will discuss some of the dominant metrics in this section.

1) Traffic: Includes number of downloads, purchases done, time spent on a particular screen, number of sessions per each user.

2) Revenue: Includes number of downloads that are paid for, number of user subscriptions, number of renewals per application, usage of e-commerce sites.

3) Engagement: This includes time spent and frequency of usage, depth of visit, duration. [2]

\[ \text{Engagement (for Web)} = \sum (C_i + D_i + R_i + L_i + B_i + I_i + P_i) \]

\[ C_i \quad \text{Click Index Visits of at least 6 page views} \]
\[ D_i \quad \text{Duration Index Visits of 5 minutes or longer} \]
\[ R_i \quad \text{Recency Index Visits that return daily} \]
\[ L_i \quad \text{Loyalty Index Visits that are registered or at least 3 return visits weekly} \]
\[ B_i \quad \text{Brand Index Visits that come directly to the site} \]
\[ I_i \quad \text{Interaction Index Visits that interact via forums} \]
\[ P_i \quad \text{Participation Index Visits that participate on the site} \]

4) Key funnel behaviors: This metric is specific to mobile applications. This lets us know the different funnels that drive the users down the different value paths in the applications.

5) Location: This metric helps us determine the usage of applications with respect to the location of usage geographically. Date and time can also be captured along with the location.

6) User behavior: Usage paths of the user, frequency of visits for each page, bounce rates for different screens/pages.

7) Technical: Indicates the types of devices,
IV. TOOLS

1) Google analytics: Google is a free and popular mobile analytics platform. In this tool overview (number of different users that access your site from various digital devices) and devices (device model being used by your site’s mobile visitors) options are used for measuring mobile traffic. Our app overview on Google App Analytics tool gives you four metrics: Mobile App Conversion (track conversion, setup goal and see goal flow), Mobile App Audience (to know new users, country/language, app versions), Mobile App Behavior (for event tracking, get reports on speed and crashes) and Acquisition (to find out about your new users).[3]

2) Localytics: It is a perfect real time analytic for all mobile and internet apps which offers user segmentation, engagement analysis and lifetime value tracking and has a simple plug-and-play SDK. There is no substitute for Localytics when trying to turn our mobile data into information that will drive our business.

3) Webtrends: It reveals details of customer activity in mobile optimized websites and mobile apps, providing deep insights into customer engagement. It offers solutions for mobile analytics and tracking. It covers apps, social, mobile web, SMS, geo-location and QR codes.

4) Mixpanel: It is a real-time analytics service it can help us to understand how people interact with our web application. It focuses on reporting on actions, letting us to track specific users and create cohort group of users that let us to measure interaction between users who downloaded our app over different time periods.

5) Flurry: It is a well known mobile dedicated analytic tool, it offers its device for free in order to collect ad data. It allows us to evaluate user engagement, revenues, lifetime value, installs and all the standard stuff, as well as crash analytics.

V. IMPACT

Mobile traffic analysis has a huge impact on various fields such as social networking, sociology and of course – e commerce.

- The better understanding of user base helps them in producing a better marketing strategy.
- Location metrics can help them gain knowledge about the geography of the most frequent users and help them customize according to the local requirements.
- Technical metrics help in providing the best viewing experience for the user as it lets us know the most common screen size preferred for usage, OS requirements, versions etc.
- Funnel behaviour lets us know the key paths in the website/application.
- Metrics relating to revenue aid in learning the most frequent purchases or most common of genres of purchases in various applications/websites. This feature is especially useful for e-commerce or e-retail websites/applications.

VI. FUTURE RESEARCH

Mobile analytics has a very huge impact on the way business can be handled online. There are many technical issues that are to be handled to achieve the full potential of this field. Some of the most important concerns would be,

- Collection of data from the mobile devices without breach of user security or service provider agreements.
- Mobility comes with some explicit drawbacks such as battery constraints, bandwidth constraints, security issues that may hinder the efficient gathering of relevant data.
- Understanding which metrics would be suitable for what section of business.
- Analytics algorithms that can work within the constraints of the mobile environment.
- Security of the data collected by the traffic monitoring applications.
- Mobile analytics can be done on the mobile device or the data can be transferred onto a third party location which can perform the analysis. Deciding which is better is also challenging.

VII. CONCLUSION

Mobile analytics helps us to understand and analyse the usage of the websites or applications on a mobile device. We have discussed some of the metrics, tools, impact and some future research areas for mobile analytics in this paper. Desktop web analytics is no longer sufficient for enough understanding of user behaviour as majority of internet traffic has shifted to mobile devices and it is growing exponentially day to day. The future of business and data analytics is going to mobile centric.
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