Abstract

Smartphone & tablet revolution has sparked the need for development of web applications to give flexibility to the user so that he can use the required apps from the comfort of his device. But are web apps beneficial compared to native apps? This paper discusses the benefits and drawbacks of both native apps and web apps over one another.

Modern apps can be classified into three categories: web apps, native apps and hybrid apps. The most common of these apps nowadays are web apps which are mainly built using HTML5 and CSS3. These apps have the largest market share due to their applicability on mobile devices. Over 3.6 billion people own or have access to mobile devices globally. Of which, over 1.6 billion use Web through mobile devices, a number which increases every day. They are easy to deploy as the code sits on the cloud and updates/changes made in the cloud reflect directly on all devices where the app is installed. Ease of deployment by developers and ease of use to customers make this option widely popular. However, certain functionalities are available only on desktop applications and making them compatible to mobile devices will make the process cumbersome and less user friendly. Developing responsive designs for each device according to its size and orientation also enhances design chaos among developers. Web apps pose security threats to the device as there are no malware prevention software present on the phones. File systems, webcams and sensors cannot be accessed using web apps over all browsers as on this day.

Native apps, on the other hand, is a software application which has been developed specifically to run on a device at the operating system level. Due to this fact, they need to be downloaded explicitly by searching them on App store. These apps interact with the OS installed on the mobile device and enhance the functionality of the software. The main drawback of these apps is the lack of portability from one OS to another. For each mobile OS, a separate app must be created and deployed in the specific app store which makes it very difficult to develop and maintain. But, these apps provide the flexibility to the designer and developer to apply their creativity and create beautiful applications. It also facilitates optimal use of hardware and OS on the mobile device.

On top of these features, native apps provide certain user experiences which web apps cannot provide or will take a lot of design techniques for development and rendering on a web browser. Some of these features include: multi-touch, faster graphic APIs and fluid animation techniques. These animation techniques make the gaming experience highly interactive and interesting. High quality and precise animation quality is very difficult to develop and render on web browsers as browsers do not perform well on for high capacity graphics and images.

Even after resolving the complications of design issues on web application certain issues will always occur due to their dependency on web browsers. Certain versions of web browsers are known to come with issues related to security, speed or stability which will affect the performance of the application being accessed on that browser. Hence, considering the benefits of web apps which include easy, affordable and quick development of the app and ease of updates and deployment, they prove to be much more efficient for a mobile device rather than a native app. But the most important advantage of native apps dominates which dominates all advantages of web apps is its offline usage. Web apps will always be dependent on web browser, but the native apps will work offline too.

Conclusion

The decision to build a web app or native app solely remains at the discretion of the company/purpose for which it will be largely used. Budget and time constraints might also affect the decision. However, it can be concluded that native apps will work best for applications which are hardware intensive and need dedicated memory and space. Whereas, web applications will work best where user is concerned about ease of use, speed and exchange of content over web browser.

References

1. Mobile Design & Development by Brian Fling – First Edition 2009
2. Native Apps Vs Mobile Web Apps by William Jobe – Stockholm University, published in International Journal of Interactive Mobile Technologies

<http://online-journals.org/i-jim/article/view/3226>

1. Modern Apps by Racheal Appel published in Microsoft Magazine in November 2014

<https://msdn.microsoft.com/en-us/magazine/dn818502.aspx>

1. Comparing Native & Hybrid Applications with focus on features by Felix Mohammadi Kho’i & Jawed Jahid – Blekinge Institute of Technology

<http://www.diva-portal.org/smash/get/diva2:944058/FULLTEXT02>