

Mobile Applications Development in Nigeria

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Abstract

Recently, there is high rise in the usage and manufacture of mobile devices such as Blackberry, Androids, Galaxy Tab, PDA's etc. Users have been embracing mobile applications that accompany the phone from the manufacturer; they also download some third party applications from online through the mobile browsers, and install them based on their needs. All these applications are to entertain the users and make them enjoy their mobile phones. This seminar paper reviews mobile applications, the technology behind mobile applications, the development and the protocols so as to make the developers, users, students, and intending developers understand the basic and advance features of mobile applications. Finally, the paper also makes suggestions, recommendations based on the findings of the research.

Keywords: Protocols, Mobile apps, Smartphone, Security, Downloads.

Introduction

Handheld devices are now competing with laptops and notebook in recent time; this is due to their convenience and the fact that they are less expensive. Not only that, they are becoming more indispensable tools simply because they are providing competitive advantages for the mobile workforce and their individual users. Although, there are many challenges such as security issues, fraudulent act, and the likes, but people are still embracing the technology mainly because of mobility.

As the demand for handheld devices such as mobile phones, smart phones, PDAs, i-phones, i-pads, androids, blackberry, and other WAP enabled phones increases, so also the availability of billions of mobile apps for online download increases. As such, this has made businesses and individual users of mobile phones to be thinking beyond Personal Computers. The competition among the manufacturers of hand held devices has increased the competition among mobile apps developers also. This paper focuses mainly on mobile applications. It starts by reviewing mobile applications and by stating and analyzing all the tools involved in developing mobile apps, the mobile internet, mobile application processor, the wireless application protocols etc.

Mobile Internet

This is the ability to access internet on mobile devices. Mobile internet started by using GPRS, WAP with a slow internet access but latest technology such as Wi-Fi, 2G, 3G, and next generation network, browses at a higher speed with the help of much faster web browsers. These make it possible for the users to have internet access on their mobile devices to most of the websites accessible on the personal computers[1]. The mobile internet chain is represented in Figure 1.

With mobile internet, users can check latest news on sports, weather, stock market, transaction updates on their mobile devices. It also provides user with quick access to webmail such as official mail, yahoo, hotmails and gmail accounts. In addition, users also have easy access to social networks such as facebook, twitter, skype, 2go etc. They can also make use of google maps and GPS to find locations. [2]

MOBILE INTERNET VALUE CHAIN

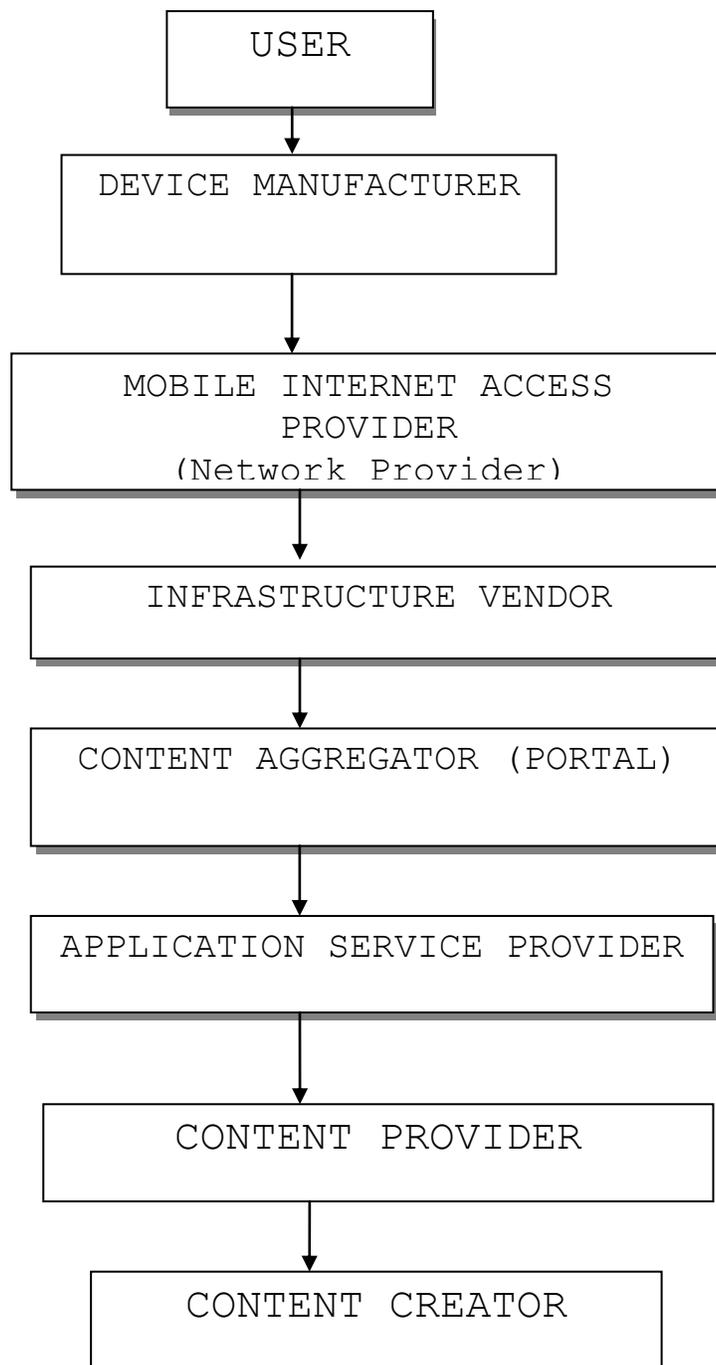


Fig. 1. The Mobile Internet Value Chain

What is Mobile Application?

Mobile Application is also being referred to as mobile apps, and can be described as internet applications that run on handheld devices such as smartphones, androids, blackberry, galaxy tab and other mobile devices. With the help of mobile apps, mobile devices are now connecting users to internet services that are usually being accessed on laptops, notebooks and desktops. In other words, mobile apps such as social network,

mobile Web site, bookmarking utility, a mobile-based instant messaging client, Gmail for mobile, yahoo for mobile, and many other applications are making it easier for users of mobile devices to access internet quickly. Mobile apps can be preloaded on the handheld device by the manufacturers, and it can also be downloaded from the internet or mobile applications shops.

Mobile Application Processor

A mobile application processor is a system on a chip (SoC) designed to support applications running in a mobile operating system environment. A mobile application processor provides a self-contained operating environment that delivers all system capabilities needed to support a device's applications, including memory management, graphics processing and multimedia decoding.

Mobile application processors may be independent from other specialized processors in the same mobile device, such as a phone's baseband (wireless communications) processor. Some vendors manufacture their own mobile application processors while other vendors purchase their mobile application processors, using them as original equipment manufacturer (OEM) components. For example, the Qualcomm Snapdragon mobile application processor is contained in many smart phones that use Snapdragon to run the Android operating system and Android applications.

In this way, every phone manufacturer needs not develop its own mobile application processor (although they can); this approach reduces bill-of-materials (BoM) cost and makes it possible to develop low-cost "smart" consumer electronics. A wide variety of mobile devices contain mobile application processors, including feature phones, smartphones, tablets, eReaders, netbooks, automotive navigation devices and gaming consoles.[3][4]

Mobile Operating System

A mobile operating system (OS) is a software that allows mobile devices to run mobile applications and programs. It makes mobile devices function just like operating system installed on a personal computer. Just like booting of a computer, a mobile OS typically starts up a mobile device whenever it is power on, presenting a screen with icons or tiles that present information and provide application access. Mobile operating systems also manage cellular and wireless network connectivity, as well as phone access.

Examples of mobile device operating systems include Apple iOS, Google Android, Research in Motion's BlackBerry OS, Nokia's Symbian, Hewlett-Packard's webOS (formerly Palm OS) and Microsoft's Windows Phone OS. Some of them, such as Microsoft's Windows 8, function as both a traditional desktop OS and a mobile operating system.

Most of the mobile operating systems are for a specific device, with little flexibility. Users can unlock some devices and applications to make them cross platform, this will allow them to install restricted mobile OS and applications. [3][4]

Cross Platform Mobile Application Development

In this age of smart mobile phones, one can find a wide variety of phones with a host of them having a separate OS of their own. We have iOS, Android, Bada (Samsung), Symbian, Blackberry, Windows mobile, HP webOS etc to name a few. Since the market is not matured yet – meaning since smart phone is new – so many companies are launching their own products and each has its own set of customers too. So, if one is a smart phone app developer and is unsure as to which technology to employ in building expertise in app

development. iOS is the king now, but what if Android dominates the market in few years time? or what if one builds expertise in Blackberry thinking it will pick up steam and it does not?

These or similar questions will always bug one's mind since no one wants to be left out. As an app development company, also one would face similar dilemma. Some questions like these are to a large extent addressed by cross-platform mobile app development. Cross-platform mobile development refers to frameworks or platforms as they are called which enable development of apps which can work on any or most of the popular OS available in the market. Given below are 3 good platforms currently available in the market.

RhoMobile – RhoMobile offers Rhodes, an open source, Ruby-based framework that allows for development of native apps for a wide range of Smartphone devices and operating systems. OSes covered include iPhone, Android, Windows Mobile, RIM and Symbian. The framework lets you write your code once, and use it to quickly build apps for every major Smartphone.

Appcelerator – Appcelerator's Titanium Development Platform allows for the development of native mobile, tablet and desktop applications through typical web dev languages such as JavaScript, PHP, Python, Ruby and HTML. Titanium also gives its users access to more than 300 social and other APIs and location information. Appcelerator's offerings also include customizable metrics for actions and events. App data can be stored in the cloud or on the device, and apps can take full advantage of hardware, particularly camera and video camera capability.

PhoneGap – PhoneGap, the recipient of the winning pitch at Web 2.0 Expo San Francisco's 2009 Launch Pad event, is a FOSS framework that helps in developing apps for iPhone, iPod, iPad, Android, Palm, Symbian and BlackBerry devices using web development languages such as JavaScript and HTML. It also allows for access to hardware features including GPS/location data, accelerometer, camera, sound and more. The company offers a cross-platform simulator (an Adobe AIR app), as well as online training sessions to help you access native APIs and build functioning mobile apps on the PhoneGap platform.[5][11]

Recommendations

From the research, it is obvious that apart from multi-tasking ability of a personal computer, mobile devices are competing seriously with personal computers (i.e desktops, laptops, notebooks etc). Mobile devices that are WAP enabled are hereby recommended for individuals and businesses for convenience, cost reduction, quick access to entertainment, information, communication, professional aids etc.

Also, the mobile application developers, OS Vendors, manufacturer of mobile devices should always consider interoperability with a view to building cross platforms applications. Lastly, future research should analyse and demonstrate Wireless Markup Language being used in coding mobile applications and make use of emulator to test run.

Conclusion

In conclusion, this seminar paper focuses on the mobile applications that are now being used by individuals to enhance mobility, browsing and entertainment. Likewise, businesses and establishments use mobile apps to enhance their revenue generation and improve their profit making. The paper also looks into the technology that powers mobile applications, such technology like WAP, mobile application development tools etc.

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