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Android Operating System Latest Technology

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Abstract— their application support and there operating system on which these application runs these sensors were placed near the root of the product. Data from sensors was transmitted via Wi-Fi in real-time to a mobile phone based on IOS/Android. In the light of obtained data, the seasonal precision irrigation system was created depending on the amount of water required by the plants at each stage of their growth stag Linux kernel is used to manage core system services such as virtual memory, networking, drivers, and power management. In these paper different features of architecture of Android OS as well security features of Android OS are discussed. Technology and features may varies from one type of mobile operating system to another type of mobile operating system .This paper produces a comparative study on smart phone operating systems Android, OS, Windows.

Keywords—Mobile operating system, Linux, Mobile Control; -Android

1 Introduction

Android operating system is one of the most widely used mobile Operating System these days [1]. Android mobile operating system is based on the Linux kernel and is developed by Google. Android operating system is primarily designed for smart phones and tablets. Since Android is an open source it has become the fastest growing mobile operating system. Due to its open nature it has become favorite for many consumers and developers The soil moisture sensor measures the amount of moisture in the soil. The measurement is done by immersing probes on the sensor. The depth of measurement may vary depending on the plant species it's therefore not compatible with OS X for applications .IOS also shares the Darwin foundation with OS X. It is very restrictive when it comes to their devices this why Apple is much securing than Android devices [7]. Android [1] was made publicly available during the fall of 2008. Being considered a fairly new technology, due to the fact that it is still being substantially improved and up graded either in terms of features or firmware, Android is gaining strength both in the mobile industry and in other industries with different hardware architectures (such as the ones presented in [2] and [3]). The increasing interest from the industry arises from two core aspects: its open-source nature and its architectural model. One of the most widely used technologies today is mobile technology. It includes several or we can say all forms of portable technology like laptops, palmtops, cell phones, personal digital assistants, wireless card payment terminals, global positioning systems. This technology is radically increasing around the world day by day

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2 Different Security Features Of Android Os

Android Operating system should ensure the security of users, user's data, applications, the device, and the network. To achieve the security of these components Android provides these key security features [10]:1) Security at the Operating System level through the Linux kernel. 2) Application sandbox for all applications 3) Secure inter process communication. 4) Application signing. 5) Application-defined and user-granted permissions.

3 Linux Kernels

Android operating system is based on Linux kernel. Due to its open source nature it is researched, attacked and fixed by many research developers. So Linux has become stable and secure kernel. Linux kernel provides Android with several key security features including: a) A user-based permissions model In the Linux file system each file and directories have three user based permissions. Owner - The Owner permissions apply only the owner of the file or directory. Group - The group permissions apply only to the group that has been assigned to the file or directory. Other users - The other Users permissions apply to all other users on the system. Each file or directory has three basic permission types: read - The read permission means user's ability to read the contents of the file. Write - write permissions mean's user's ability to write or edit a file or directory. Execute - The execute permission ability to execute a file or view the contents of a directory [11]. This permission model ensures that proper security is maintained while accessing android files.

4 Android's Architecture

Android is open-source software architecture provided by the Open Handset Alliance [8], a group of 71 technology and mobile companies whose objective is to provide a mobile software platform. The Android platform includes an operating system, middleware and applications. As for the features, Android incorporates the common features

found nowadays in any mobile device platform, such as: application framework reusing, integrated browser, graphics, media support, network technologies, etc .The Android architecture, depicted in Figure 1, is composed by five layers: Applications, Application Framework, Libraries, Android Runtime and finally the Linux kernel .The uppermost layer, the Applications layer, provides the core set of applications that are commonly offered out of the box with any mobile device .The Application Framework layer provides the framework Application Programming Interfaces (APIs) used by the applications running on the uppermost layer. Besides the APIs, there is a set of services that enable the access to the Android's core features such as graphical components, information exchange managers, event managers and activity managers, as examples. Below the Application Framework layer, there is another layer containing two important parts: Libraries and the Android Runtime. The libraries provide core features to Android new version

4.1 Android version history

Code name	Version number	Initial release date
• Lollipop	• 5.0 – 5.1.1	• November 12, 2014
• Marshmallow	• 6.0 – 6.0.1	• October 5, 2015
• Nougat	• 7.0 – 7.1.2	• August 22, 2016
• Oreo	• 8.0 –	• August 21, 2017

4.2 Android new technology futures

- Minimizes background app activity
- Auto fill remembers app logins
- Picture in Picture lets you see two apps at once
- Notification dots quickly show you what's new, and can be swiped off screen
- Android Instant Apps launch within your browser with no installation
- Google Play Protect scans apps to keep your device and data safe
- Improved battery life
- Redesigned emoji library with more than 60 new emoji

5 CUSTOMER LOCK-IN

While value may be captured in a certain location on the stack, the lock-in may occur in another layer of the stack. Platform strategies often include, or are even predicated upon, "locking in" more than one layer of the stack through switching costs or other market barriers (see Fig. 2). For example, though most persons attribute Microsoft's dominance to its control of the Window 'sOS, equally, or perhaps more important, is the Microsoft Office productivity suite, which is the consumers' connection to Microsoft and is likely more important for the mindshare lock-in than the desirability of Windows. Interestingly, though Google has points of lock-in, the seseem considerably less powerful than that of Microsoft. The true strength of Google's lock- in may be in the very diversity of services it provides. For some customers that might be search, Gmail, and Google maps, while for another customer it might be Gmail, Google Scholar, and YouTube. Each user's commitment can be to a different set of services; and all provided by the data center. With smart phones, lock-in and switching costs depend on the industry architecture for that specific market. For example, in the U.S., with its subscription-based plans, customer witching costs are high due to contracts (typically 1–2 years with earlyees)andOnlineservicesStorefrontNativeappsOSHandsetiTunes,MobileMeSearch,Gmail,MapsSearch,WindowsLiveOviStoreAppStoreNokiaAppleGoogleMicrosoftPalmAndroidMarketAppsMarkeplaceAppCatalogAndroidWindowsMobilePhone7OviMail,YahooMapsiPod,GoogleMapsGmail,Maps,VoiceSymbian,MeeGoOffice,Facebook,ConnectiOSProprietary/ licensed Web OS

Figure 1 mobile custom pattern lock

6 Platform usages

Charts in this section provide breakdowns of Android versions, based on devices accessing the Google Play Store in a seven-day period ending on February 5, 2018.

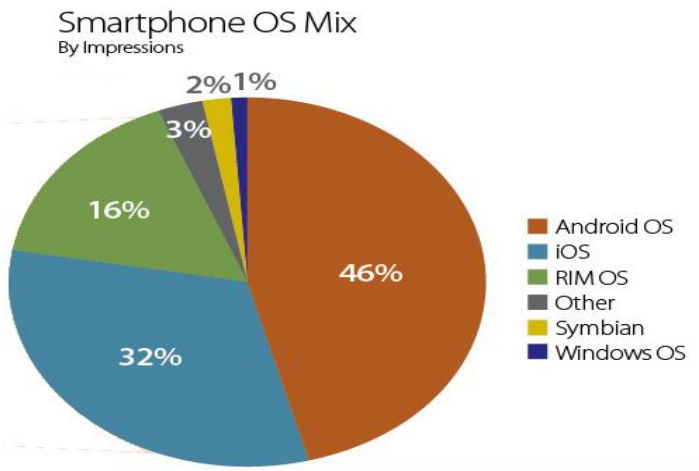

Fig 2: usage of smart phone OS

Therefore, these statistics exclude devices running various Android forks that do not access the Google Play Store, such as Amazon's Fire tablets.

7 Application privacy

In general, paid Android applications can easily be pirated. In a May 2012 interview with Euro gamer, the developers of Football Manager stated that the ratio of pirated players vs. legitimate players was 9:1 for their game Football Manager Handheld. However, not every developer agreed that piracy rates were an issue; for example, in July 2012 the developers of the game Wind-up Knight said that piracy levels of their game were only 12%, and most of the piracy camerom China, where people cannot purchase apps from

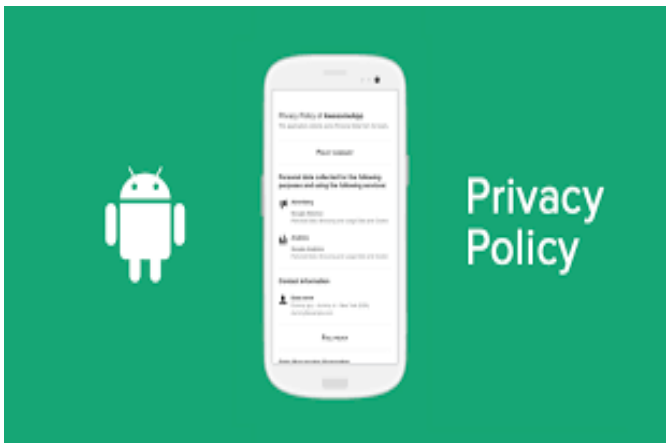

Fig 3: application of privacy policy

In 2010, Google released a tool for validating authorized purchases for use within apps, but developers complained that this was insufficient and trivial to crack. Google responded that the tool, especially its initial release, was intended as a sample framework for developers to modify and build upon depending on their needs, not as a finished piracy solution. Android "Jelly Bean" introduced the ability for paid applications to be encrypted, so that they may work only on the device for which they were purchased.

8 Conclusion

If we talk about today's mobile generation the mobile phone is the ideal technology. The next few years, internet connected mobile computing devices will drop radically in price and will increase in functionality. Therefore, there will be clear winners and losers in the mobile app market. Each application runs with its own instance of Dalvik VM. So applications cannot access each other's data. If applications want to access shared data or resources then they require permissions. All Android applications are signed so users know that the application is authentic. The signing mechanism allows developer to control which applications can grant access to other application on the system. Thus this Location based intelligent observer application using GPS tracking is developed so as to add value and organize users' task intelligently. Android and compete with excellent designs. The emerging Asian manufacturing giants Samsung, LG, and HTC that have found it difficult to create globally acceptable software and user interfaces can use the global-class Android OS, and concentrate upon their manufacturing prowess and their ability to source a significant number of components in house. Android confronts Apple with a plethora of competitor

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