

Comparison and Security App of ANDROID OS using different versions: an Overview

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ABSTRACT

Android is most commonly used operating system now days in mobiles. It has different features out of which power management, kernel enhancement, Dalvik virtual machine, connectivity and Skype have been discussed. Bench mark testing of different versions of android Operating systems also focused using security apps. It has found that Android operating system is the most suitable for fulfilling customer needs in growing era.

Keywords: Dalvik, Linex kernel, Power, Remote Security

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1. Introduction:

Android is Google product [1]. Worldwide community is admiring the platform of android due to its open source nature and approval by telecommunication providers [2]. There are different application framework layers containing runtime and system libraries [3]. Cameras, GPS and internet connection are defending resources which use a quite standard resource [4]. Different tools and strategies have been developed by the help of which many kind of issue can be resolved [5]. Android applications can be downloaded using SDK {software development kit} [6-7]. To overcome the problem of malfunctioning in malware patterns in the application of android in order to secure the dynamic and static analysis there exist two different kind of applications [8]. The anomalies of system are detected by event detection modules, file system logs, kernel system logs and network traffic [9]. Open source project including linex kernel are used to build android [10-14]. Permission mechanism is fine-grained in android [15]. Android API could use different permissions at runtime [16]. Code reusability increases by model application which is based on android frame work force [17]. Android apps break into chains making the monitoring behavior easier [18]. System like UNIX capture source library by the help of libcap in the android [19]. Mobile device can remotely control in android platform Java can be used to control serves to run a group of program on device [20]. Virtual networking computing can be used to perform the most popular remote control devices [21]. SE java work used to derive SE-Dalvik for protection of android [22] that aims to defend the Java Virtual Machine (JVM). The version of Emotion Sense used in [23] also reconfigured the sensor parameters, surveys and triggers by checking with remote design files stored in server to allow the app behavior to automatically update without user involvement. Android Smartphone libraries that have been designed

to maintain social science research applications [24]. Android becomes more and more popular researchers have begun to search its use as a platform for safety- and mission- critical apps [25]. Android include their own built-in default browsers [26].

In this paper we describe the features of android operating system and comparison of different version of android operating system.

2. Features of Android

Following figure explain different feature of Android including kernel enhancement, Dalvik machine, File system, connectivity, Skype.

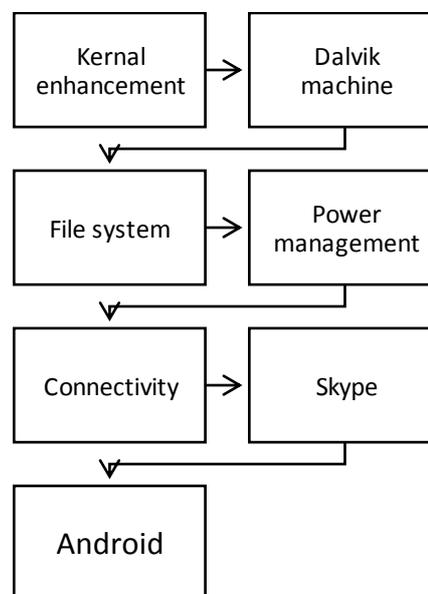


Fig1. Feature of Android operating system

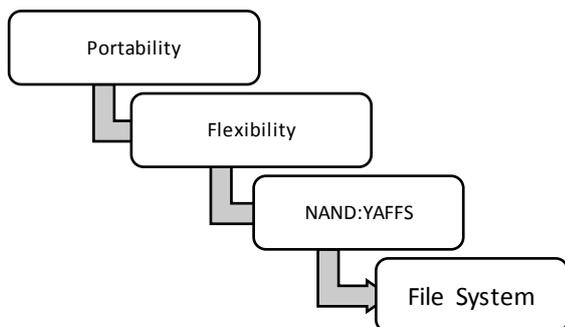
2.1 Kernel enhancement

Linux kernel is very important feature of Android operating system. This provides the necessary initializations for the starting of operating system [27]. Kernel enhancement includes Alarm driver, driver anchman (Android shared memory driver) binder driver, power management, low memory killer Support of the security model from (LSM) to be interfering with the dependencies of SE Linux in android and file system with the security labels exists to enable the device [28-29].

2.2 Dalvik virtual machine

In present days the users of mobiles face two of common problems first one is limited power is most common whereas second one is space problem for data storage these problems one addressed in Dalvik virtual machine [30]. Applications that are run in the Java syntax using the virtual machine are called as Dalvik. This is different from standard virtual machine being used by java.[31]The operating system has facility to present isolation process from building inside the DVM[32] Own user and ID for group can be installed in each application which is enforced by isolation [33].

2.3 File system



Flash system is used in an android known as NAND. In mobiles hard disk is too large, too fragile using high power whereas flash memory provides fast reading access, better shock resistance over hard disk. NOR and NAND are two different technique used in flash memory. NOR is low density and NAND is high density [34]. The data on flash disk can be deleted efficiently and safely by using DNEFS which is also known as Data node encrypted file system [35, 36].

2.3.1 NAND: YAFFS:

YAFFS which is abbreviation of yet another flash file system was evolved to support the file system flash devices of NAND[37]. The difference in NOR & NAND is that both are addressing to different locations. The first one relates to Bit which other to Block[38]. Flash file system eliminates seeking time as compared with general purpose disk file system but life time limitations and correction still exist. But the file

system are corrupted the mobile devices usually tolerate less error which is overcome in YAFFS [39].

2.3.2 Flexibility

It is extremely configure able to work with various flashes. The flexibility of the Android platform along with the phone's hardware facility allows this system to be extended in numerous ways [40-41].

2.3.4 Portability

It is simple and convenient to many operating systems. Android is superior to Symbian in a way that it permits the platform for java and Linux while Symbian not. Therefore Android gets more point over Symbian [42-43].

3. Power management

Power management of CPU [44- 45] and network component has been focused in [46-47] Modern computer especially laptop needs to be operate on power using power management operating system. APM is not used in Android for power management. Android Smartphone Battery Saving Service [48], Power can be saved by using Android which is evaluated by utilizing the smart phone as most of the energy is consumed by turning ON the Bluetooth and Wi-Fi. In mobile saving battery life time is most important because people like live wallpapers that they consume battery life constantly as a result android provide black background has been selected of client time log system in order to save the battery life [49].

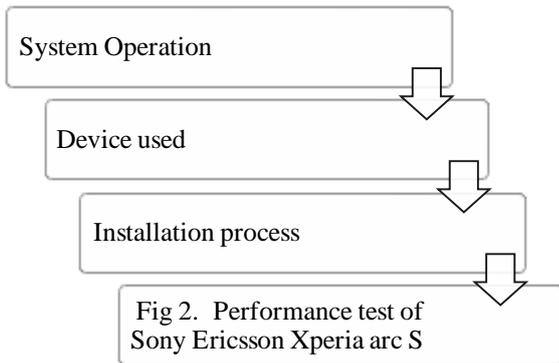
4. Connectivity

Android supports a broad range of connectivity technologies including GSM, CDMA, Bluetooth, EDGE, and 3G[50-51].

5. Skype

In the android Skype app provide VOIP functionality via the Skype service [52]. Data directory build inside the Skype application is readable worldwide, this data stores without being encrypted this feature is susceptible in Skype [53].

6. Performance test of Sony Ericsson xperia arc s



Sony xperia arc s having processor 1401 MHZ and operating system version is 4.04 ice-cream sandwiches.

When we install application size is 813KB then it takes 3.1 second for installation.

Technical Data	Information
Device Used	Sony Ericson xperia arc s (processor 1401MHZ)
System Operation	Android 4.0.4 ice cream sandwich
Installation Process	Less than 3.1second
Installer Size	813 kb

In table below the data shows the comparison of different Android based mobiles with different versions. The trial was conducted to check the behavior of different parameters on different versions. Commonly known mobiles phones used including Sony Ericsson xperia arc s LT18I Samsung Galaxy Grand GT I9082, Q Mobile Noir A600.

8. NQ MOBILE EASY FINDER

NQ mobile easy finder gives the security to locate and theft mobile. In which the image of thief is captured as soon as he uses it and same image is loaded on your phone.

The intruder cannot steel the personal data if someone tries to unlock the phone. Same way is remotely controlled using web (find.nq.com) [54].

7. ANTUTU BENCHMARK RESULTS

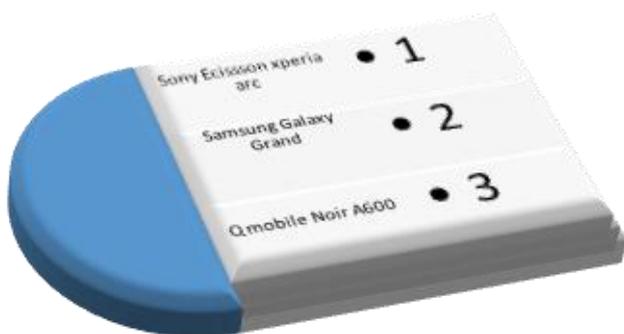


Fig 3. Different types of mobile phone

Mobile phone used for testing	Brand	Android SDK version	Display resolution	Video specification	RAM speed	Bluetooth	Cpu model	Cores	Score
Sony Ericsson Xperia Arc s LT18I	SEMC	15(Android 4.0.3)	480x854	720P	498	V2.1 with A2DP	Qualcomm snapdragon MSM8255	1	7617
Samsung Galaxy Grand GT I9082	Samsung	16(Android 4.1.x)	480x800	1080P	569	v4.0 with A2DP	Broadcom BCM28155	2	10807
Q mobile Noir A600	Q mobile	16(Android 4.1.x)	720x1280	Nil	457	Simple Bluetooth	MTK MT6589T	4	13145

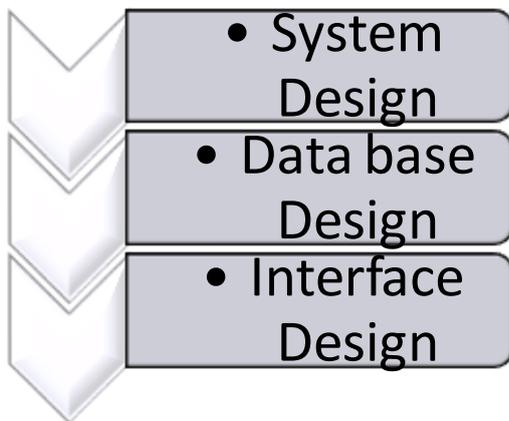


Fig 4.Design feature of NQ easy finder

Feature	On/off
Smart finder	(Compulsory) on
Locate my phone	On(own desire)
Take a mug shot	On(own desire)
Backup contacts	on(own desire)
Sim card alert	on(own desire)

Field	Variables
Reporting phone no.	Text
Reporting Email	Text
Owner's name	Text
Emergency msg	Text
Contact Finder	Text

Table 3 Database for tracking applications and security lock

9.1 Interface design

The figure below the interface design is explained which explains how to use the application of tracking with security lock.

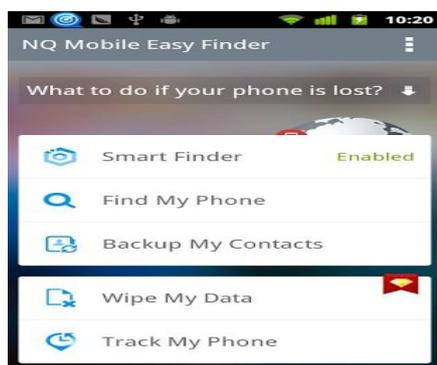


Fig 5. Interface Design

10. CONCLUSION:

We have found that Android operating system is most suitable to meet growing demands of customers in order to fulfill the security and other features. This operating system as compared with other versions is superior to use as it gives more apps and user friendly.

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