WELCOME
Mobile Applications Testing

Platforms / OS :
ANDROID FILE FORMAT .APK

- *Android application package **(APK)** is the package file format used by the Android operating system for distribution and installation of mobile apps and middle-ware*

What is an APK File?

- Just like Windows (PC) systems use an .exe file for installing software, Android does the same.
  An APK file is the file format used for installing software on the Android operating system.

Platforms / OS :
iOS

- *iOS (originally iPhone OS) is a mobile operating system created and developed by Apple Inc. and distributed exclusively for Apple hardware*

- It is the operating system that presently powers many of the company's mobile devices, including the iPhone, iPad, and iPod touch.

Platforms / OS :
iOS latest version 10.0 – 10.X

- Apple unveiled iOS 10, the next-generation operating system for the iPhone, iPad, and iPod touch, on Sept 13, 2016
- iOS 10.2.1, was released on January 23, 2017
- most recent beta version, iOS 10.3 Beta 2, was released on February 6, 2017
- https://david-smith.org/iosversionstats/

Platforms / OS :

iOS latest version 10.X

http://www.mobiloitte.com/blog/evolution-iphone-os-1-ios-10-journey-ios

Platforms / OS :

Version Name HISTORY → iOS

- 1.0: Alpine (1.0.0 - 1.0.2: Heavenly)
- 1.1: Little Bear
- 1.1.1: Snowbird, 1.1.2: Oktoberfest
- 2.0: Big Bear
- 2.1: Sugarbowl
- 2.2: Timberline
- 3.0: Kirkwood
- 3.1: Northstar
- 3.2: Wildcat (iPad only)
- 4.0: Apex
- 4.1: Baker
- 4.2: Jasper (4.2.5 - 4.2.10: Phoenix)
- 4.3: Durango
- 5.0: Telluride
- 5.1: Hoodoo
- 6.0: Sundance
- 6.1: Brighton
- 7.0: Innsbruck
- 7.1: Sochi
- 8.0: Okemo
- 8.1: OkemoTaos
- 8.2: OkemoZurs
- 8.3: Stowe
- 8.4: Copper
- 9.0: Monarch
- 9.1: Boulder
- 9.2: Castlerock
- 9.3: Eagle
- 10.0: Whitetail

Platforms / OS :
iOS (iPhone) Architecture (simplified)

Cocoa Touch Layer

It is a top layer of the iPhone OS stack and it contains the frameworks that are most commonly used by iPhone application developers.

Media Layer

It is the second layer from the top of the stack. It provides the iPhone OS with audio, video, animation and graphics capabilities.

Core Services Layer

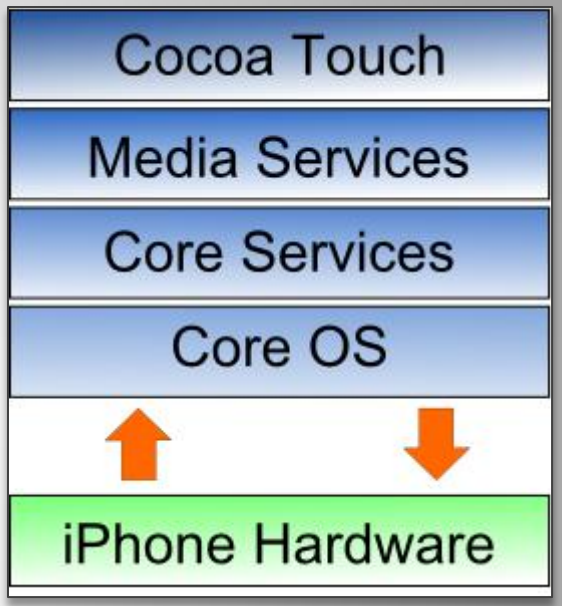
It is the third layer from the top of the stack. The iPhone Core Services layer provides much of the foundation on which the above layers are built.

Core OS Layer

The Core OS Layer is the bottom layer of the iPhone OS stack and sits directly on top of the device hardware. This layer provides a variety of sevices

iPhone Hardware

Hardware devices are managed by iPhone OS and provides the technologies needed for implementing native applications on the phone.



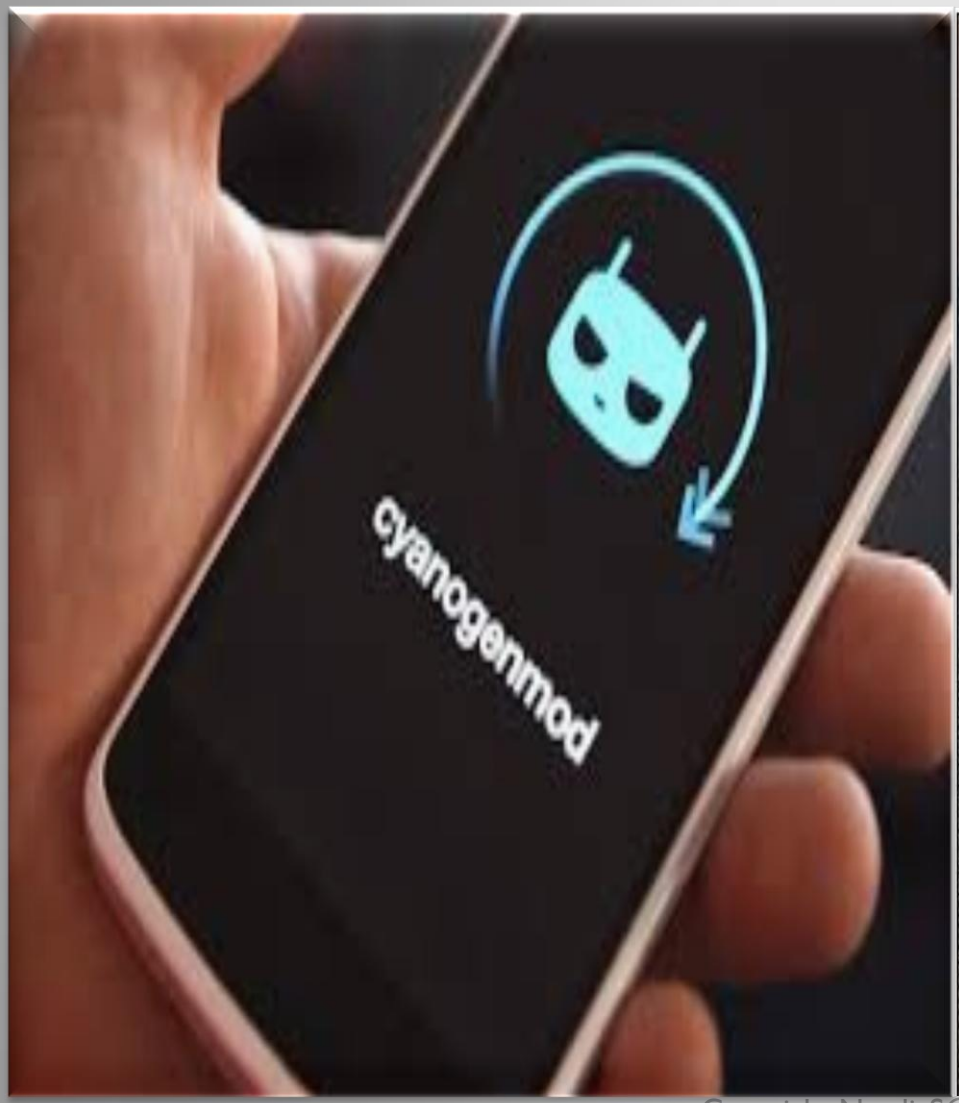
Platforms / OS :
iOS .IPA

- An **.ipa** file is an iOS application archive file which stores an iOS app.
- Each **.ipa** file includes a binary for the ARM architecture and can only be installed on an iOS device.
- Files with the **.ipa** extension can be uncompressed by changing the extension to .zip and unzipping.

Platforms / OS :
ANDROID vs IOS : SUMMARY

Category	Google Android	Apple iOS
License - Source	Open Source	Close - Proprietary
Company	Open Handset Alliance/Google	Apple
OS Platform	Linux	OS X – Unix (Darwin)
Programming Language	Java 	Objective-C, Swift 3.0
Virtual Machine	Dalvik VM	None
Package Manager	APK – Google Play/Play Store	IPA- App Store
Carriers	AT&T, Verizon, T-Mobile, Sprint, MetroPCS, Virgin, 96% out of 369 US carriers	Apple Store, AT&T, Verizon, Sprint, Virgin Mobile, Cricket + 10 regional carriers
Life Battery	Moderate	Advance high
Browser Engine	WebKit: Web, Opera Mini, Dolphin, **Chrome**	WebKit: Safari, Opera Mini, **Chrome**

CyanogenMod

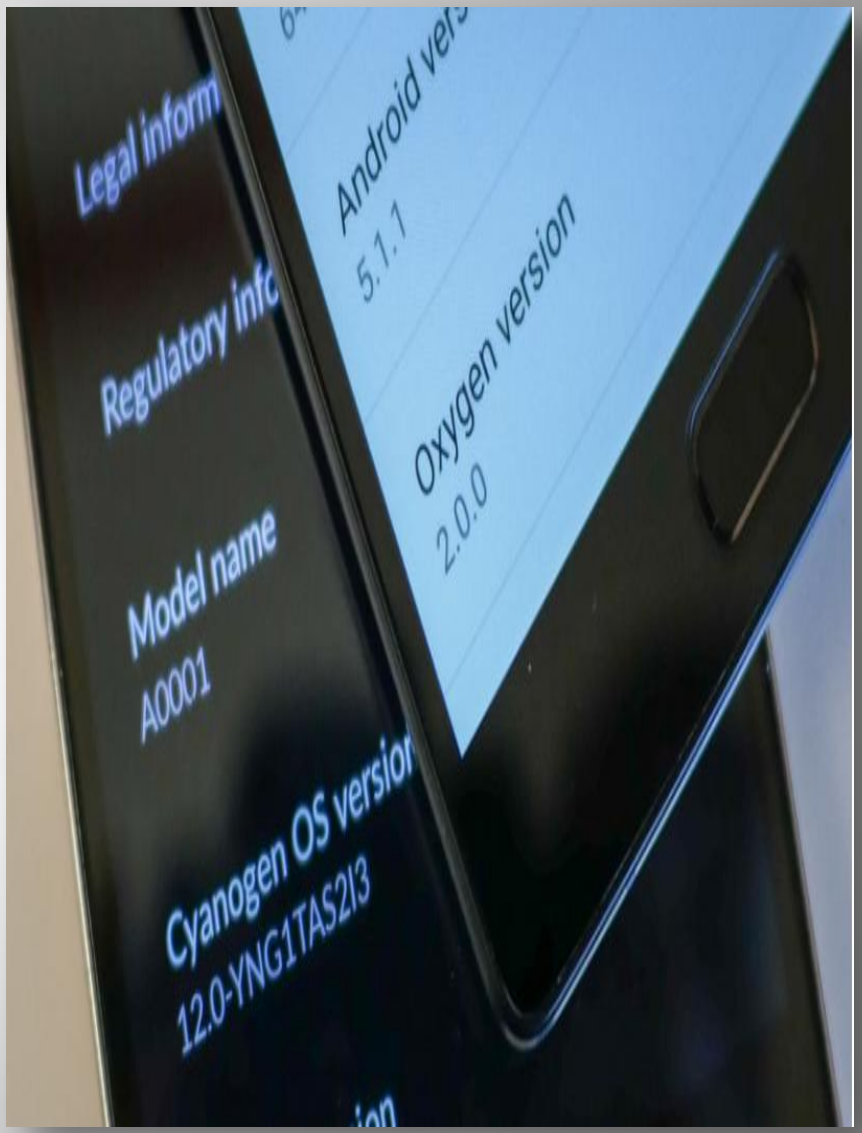


CyanogenMod

What is it ?

CyanogenMod is an enhanced open source firmware distribution for SmartPhones and tablet computers based on the Android mobile operating system.

It offers features and options not found in the official firmware distributed by vendors of these devices.



CyanogenMod

About 1-2 times a year, the vanilla Android operating system (known as AOSP, or the Android Open Source Project) is internally developed, then released to the public, by Google. They provide the source code to anyone who wants to download it.

The CyanogenMod community, comprised mostly of unpaid volunteers and enthusiasts from around the world, takes this newest Android code and "ports" it to dozens of new and older (aka "legacy") devices.

CyanogenMod

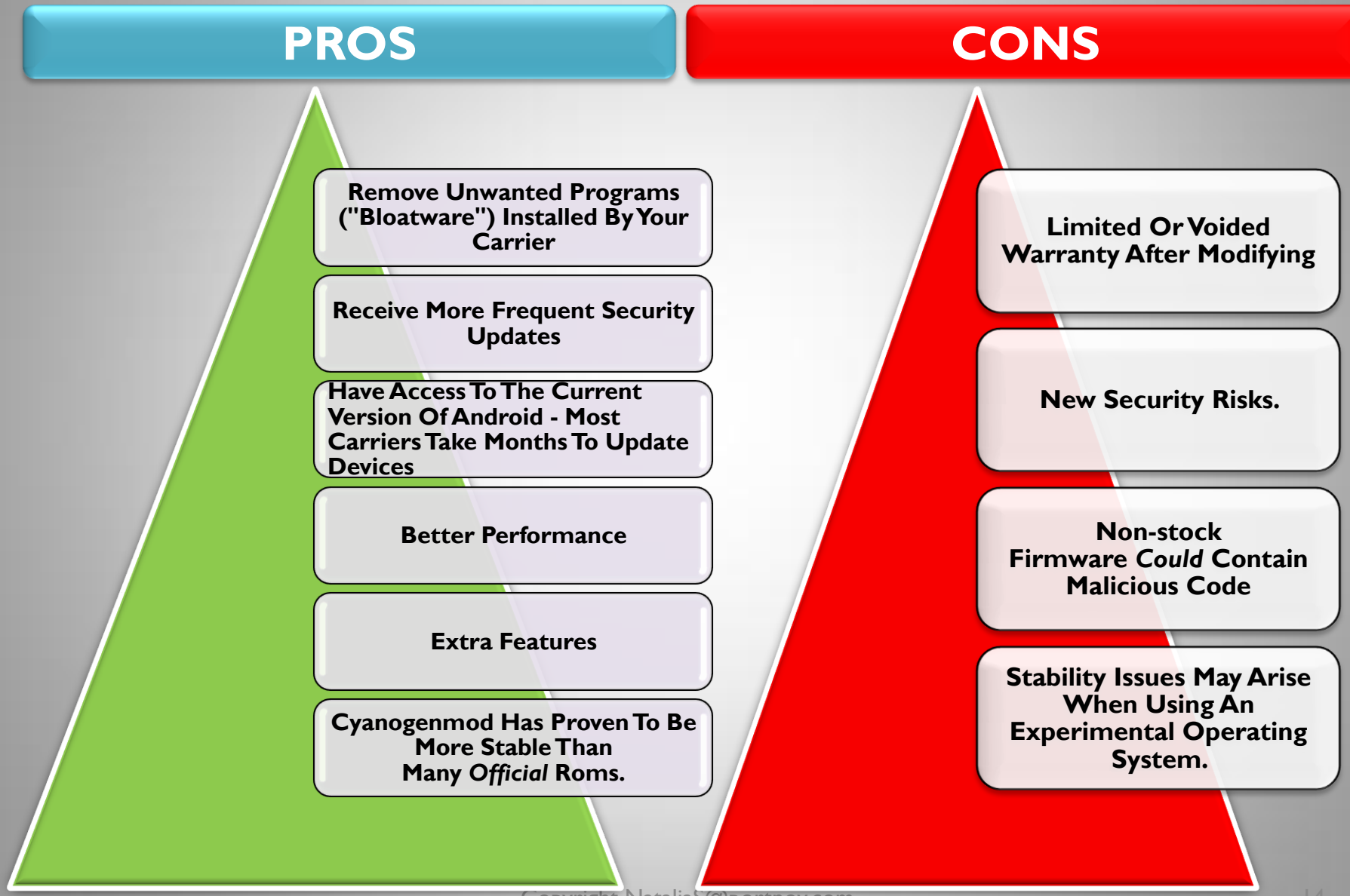
In many cases, CyanogenMod may increase performance and reliability compared with official firmware releases.

CyanogenMod is developed as free and open source software based on the official releases of Android by Google, with added original and third-party code.

Features supported

- Native Theming
- FLAC Audio Codec
- Large Access Point Name List
- Openvpn Client
- Enhanced Reboot Menu
- Wi-fi
- Bluetooth
- USB Tethering
- CPU Overclocking
- Other Performance Enhancements
- Soft Buttons And Other "Tablet Tweaks"
- App Permissions Management
- Other Interface Enhancements

CyanogenMod



CyanogenMod

FEATURE LIST

- CM Updater
- Privacy Guard
- Global Blacklist
- Quick Setting Ribbon
- Quick Settings Config
- Them
- Trebuchet
- Status Bar Behavior
- CM File Manager
- Display and Lights
- Profiles
- Button Configuration
- Navbar
- AudioFX
- Tethering
- Developer Tools
- Root Access
- Superuser: Advanced Device controls
- SMS Rate limit

CyanogenMod

Difference between CyangenMode and Cyangen OS

CyanogenMod is an aftermarket ROM.

It is a custom ROM based on AOSP, and has some nifty features of it's own. It is open source.

Cyanogen Inc. is a company which distributes CyanogenOS, a slightly more polished variant of CyanogenMod with certain device-specific features.

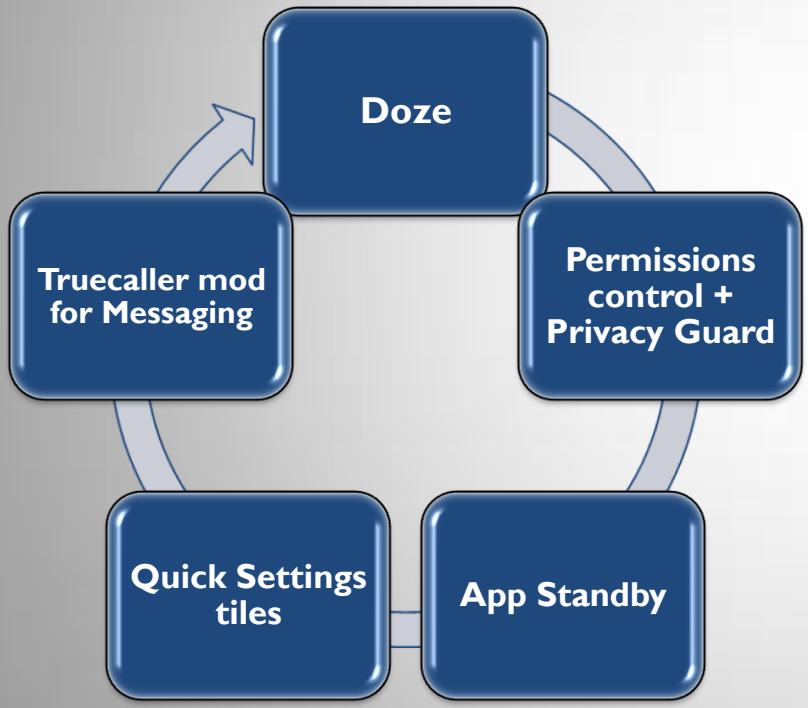
CyanogenOS is not open-source.

- ***Cyanogen Inc. is the company***
- ***CyanogenOS is it's product***
- ***CyanogenMod is the ROM which essentially is the backbone of CyanogenOS, and Cyanogen Inc.***

CyanogenMod

Latest Version for all devices

Marshmallow offers a number of useful features that Cyanogen leverages, including:



Tastes like Marshmallow

Supported Devices : http://www.ibtimes.co.uk/cyanogenmod-13-0-full-list-devices-getting-official-stable-release-1550461

CyanogenMod

OS 14.1: Released November 09, 2016

Available for Selected Devices ONLY

- CM 14.1 is simply the latest version of CyanogenMod, based on the Android 7.1 Nougat source code.

Multi-window Mode

New System UI

Optimized Battery Management

Pre-set AudioFX audio settings

Other Android 7.1 Features

Supported Devices : http://www.cyanogenmods.org/official-cyanogenmod-14-1-cm14-1-devices-list/

Mobile Ecosystem

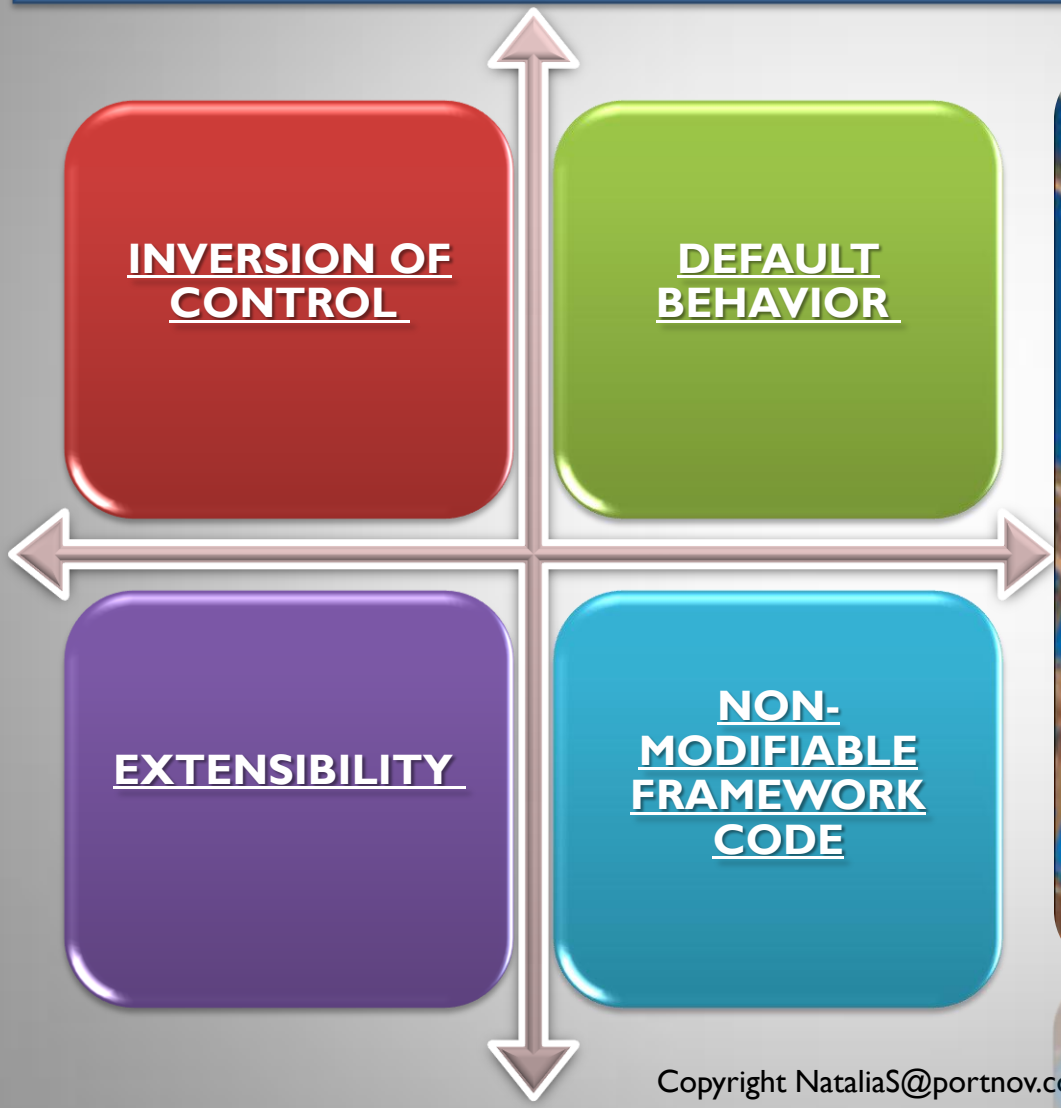
- Mobile World Statistics
- Carriers/Service Providers
- Network
- Manufactures
- Devices
- Platforms/OS
- **Frameworks**
- API-Apps
- Services

FRAMEWORKS

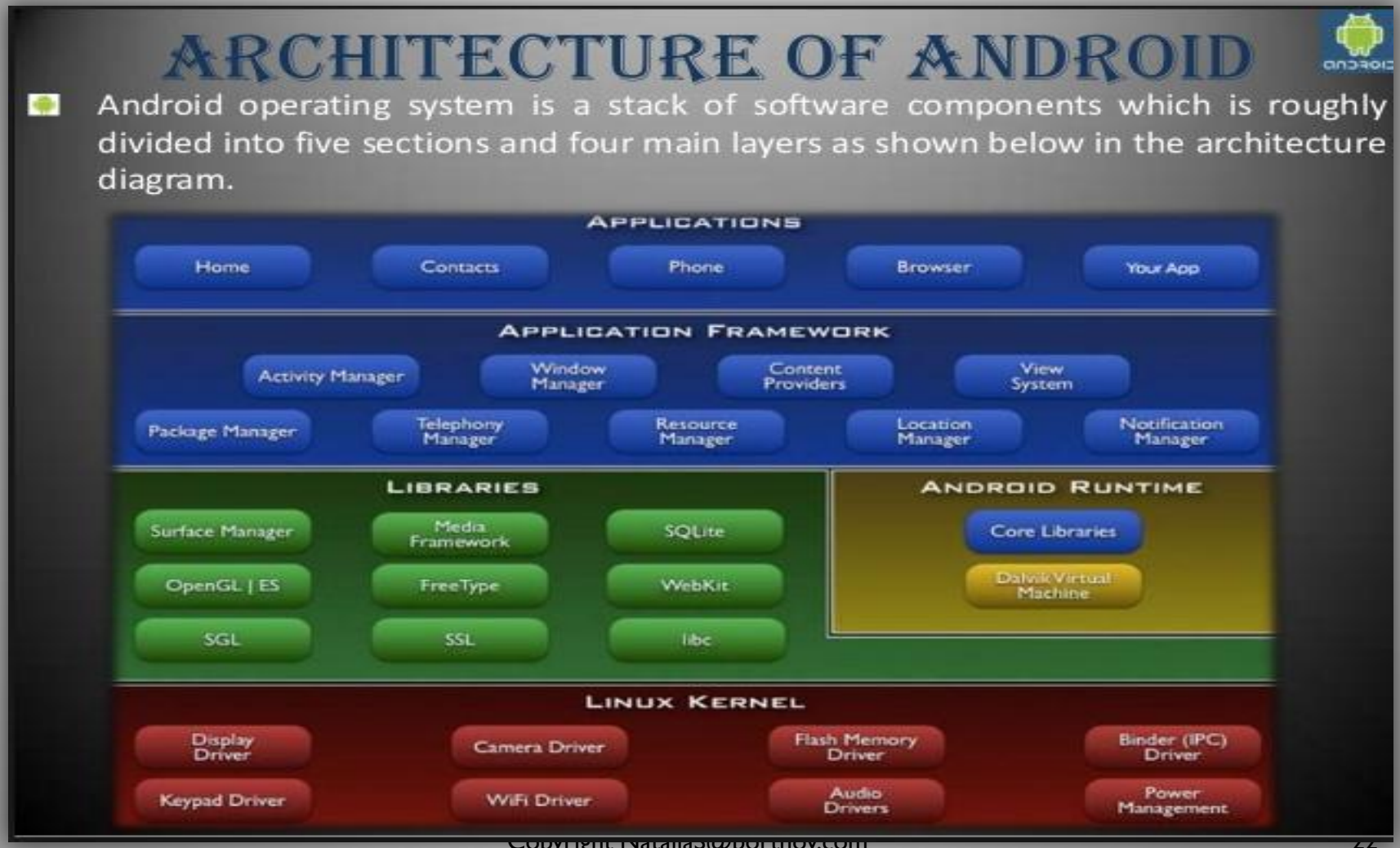
SOFTWARE FRAMEWORK in computer programming, is an abstraction in which common code providing generic functionality can be selectively overridden or specialized by user code providing specific functionality

FRAMEWORKS are a special case of software libraries in that they are reusable abstractions of code wrapped in a well-defined Application programming interface (API), yet they contain some key distinguishing features that separate them from normal libraries

FRAMEWORKS : distinguishing features



Platforms / OS :
ANDROID ARCHITECTURE



FRAMEWORKS

Example → ANDROID APP

Application Framework sits on top of native libraries, android runtime and Linux kernel.

This framework come pre-installed with high-level building blocks that developers can use to program applications.

RIGHT SIDE → the most important application framework components for our application and Android development in general.

Activity Manager	• Manages the lifecycle of application
Content Provider	• Stores and retrieves data and makes it accessible to all applications
View system	• Handles GUI related Tasks
Package Manager	• Retrieves various info related to the currently installed app on a device
Resource Manager	• Provides access to non-code resources such as icons, etc
Location Manager	• Location-based and related services
Notification Manager	• Executes and Manages all Notifications, alerts, etc

FRAMEWORKS

Example → Win CE and OS X

SF is a universal, reusable software platform used to develop applications, products and solutions.

SF include support programs, compilers, code libraries ,APIs and tool sets that bring together all the different components to enable development of a project or solution.

- Platform: Windows CE
- OS: Windows Phone
- Framework: .NET

- Platform: OS X
- OS: iOS
- Framework: Cocoa Touch

FRAMEWORKS : CONCLUSION

SUMMARY

Soft development is about getting stuff done, not figuring out how to get it done.

Frameworks and libraries help the developers focus on creating rather than figuring stuff out.

Rather than reinventing the wheel, Developers can use a framework or library to delegate brunt, noncreative and repetitive work, freeing up their time and energy to create the actual website or application.

Mobile Ecosystem

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- Frameworks
- **API-Apps**
- Services

API-APP

Application Programming interface (API) is a set of functions, classes, libraries, or packages (a.k.a. frameworks)

API allowing developers access an application's services by using the programming languages☐

An API may include specifications for routines, data structures, object classes, and variables

Generally speaking, API →specification of how some SW components should be interacting with one another other

Tutorial : Click Here