
Commercial Mobile Operating Systems

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IBM Simon

- ❖ Multifunctional phone
- ❖ Features
 - E-Mails.
 - Fax.
 - Cellular pages.
- ❖ Applications
 - Addressbook
 - Calendar
 - Appointment Scheduler.
 - World time clock.
 - Electronic note pad
 - Stylus input for keyboard.
- ❖ OS is ROM-DOS with file Staker



Palm OS (Palm Pilot 1000)

- ❖ It is PDA and Phone that uses the motorola processor of 16 Mhz with 256 Kb or 512 Kb of Built in RAM.
- ❖ Features
 - Monochrome LCD Panels with Handwriting Recognition.
- ❖ Applications
 - Date Book
 - Address Book
 - To Do List
 - Memo Pad
- ❖ It uses the palm OS.



Palm OS

- ❖ Simple, single-tasking environment to allow launching of full screen applications with a basic, common GUI set
- ❖ Monochrome or color screens with resolutions up to 480x320 pixel
- ❖ Handwriting recognition input system called Graffiti 2
- ❖ HotSync technology for data synchronization with desktop computers
- ❖ Sound playback and record capabilities
- ❖ Simple security model: Device can be locked by password, arbitrary application records can be made private
- ❖ TCP/IP network access
- ❖ Serial port/USB, infrared, Bluetooth and Wi-Fi connections
- ❖ Expansion memory card support
- ❖ Defined standard data format for personal information management applications to store calendar, address, task and note entries, accessible by third-party applications.



Windows Embedded Compact (Windows CE)

- ❖ Os developed by Microsoft.
- ❖ It uses the hybrid kernel.
- ❖ Optimized kernel runs on 1 MB of Memory.
- ❖ Platforms
 - AutoPC
 - Pocket PC 2000
 - Pocket PC 2002
 - Windows Mobile 2003
 - Windows Mobile 2003 SE
 - Windows Mobile 5
 - Windows Mobile 6
 - Smartphone 2002
 - Smartphone 2003
 - Portable Media Center
 - Zune and Now **Windows Phone**



Symbian OS

- ❖ Developed by Nokia, Samsung, Ericsson, Panasonic.
- ❖ In 2008 it will acquired fully by nokia.
- ❖ After the launch of android by google then symbian become open source under Eclipse Public License (EPL).
- ❖ In 2011 nokia moves from symbian to windows phone.
- ❖ Symbian is a mobile OS that,
 - Real time, Multitasking, Preemptive, 32 bit OS runs on ARM processors.
 - It is microkernel based.
 - Flavours of symbian (Series 60, UIQ Interface).



Symbian OS

- ❖ It supports communication protocols like TCP, UDP, PPP, DNS, FTP, WAP.
- ❖ It supports Bluetooth, InfraRed, USB Connectivity.
- ❖ Low power mode of CPU switch available.
- ❖ Low on power and memory requirement applications (OOPS) based.
- ❖ Event based applications run by active objects.
- ❖ Carbide is an IDE supports for C++ development.
- ❖ Eclipse plug-in is available for development.



Android OS

- ❖ Google's operating system.
- ❖ Open source.
- ❖ Features
 - Phone based keyboard or touchscreen for input.
 - Has built-in web browser that renders the web page fully.
 - Easy way to develop third party applications.
 - Android SDK and Eclipse.
 - Provides RDBMS SQLite for data storage.
 - Pre installed applications such as Gmail, Maps, Voice-Search, etc.



Android OS

- ❖ Application Layer
 - Web browser, Email client, SMS Manager, Maps.
 - Apps written in J2ME.
 - No priority control to manage resources aggressively.
- ❖ Application Framework
 - Used to implement standard structure for apps.
 - It provides the set of services that can be used by developers.
 - Services
 - Managers (For events)
 - Content providers (For accessing data)

Application Layer

Application
Framework

Library and
Runtime

Kernel

Android OS

❖ Libraries and Runtime

- It is written in multiple languages including C and C++ and called through JAVA interfaces.
- It includes surface managers (for compositing windows) 2D and 3D graphics, Media codecs (MP4, MP3) an SQL database SQLite.
- It includes web browser engine called webkit.
- Runtime
 - Core libraries
 - Dalvik virtual machine
- DVM converts the java code into native ARM code.
- Each Application runs as own process with own instance of Dalvik virtual machine (DVM).

Application Layer

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Android OS

❖ Kernel

- It is based on Linux kernel.
- Excluded native X windows of GNU.
- Android implements it's own
 - Device drivers
 - Memory management
 - Process management
 - Networking functionalities
- Runs the application concurrently
- Google initially maintains the kernel code and contributed to linux public distribution.
- Now google no longer maintains the kernel extensions.

Application Layer

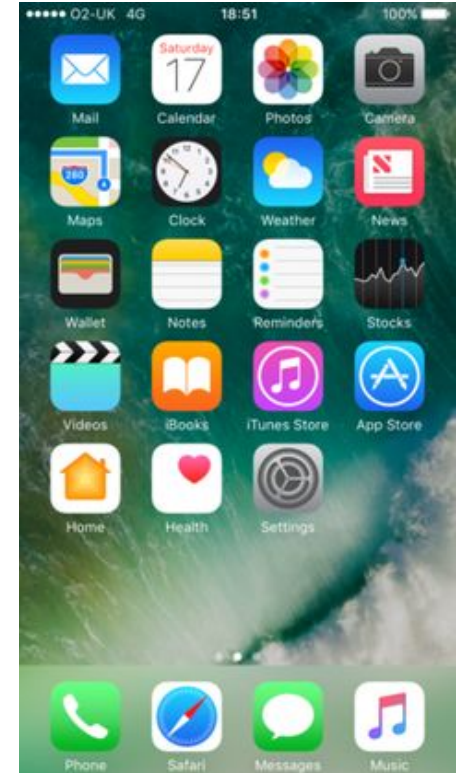
Application
Framework

Library and
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Kernel

iOS (Apple)

- ❖ Apple developed iOS for iPhone the direct replacement for iPod.
- ❖ It is derivative of Mac OS.
- ❖ It is property and maintained apple.
- ❖ Market shots,
 - Geatures
 - Swipe
 - Tap
 - Pinch
 - Reverse Pinch
 - It includes internal accelerometer for recognize the shake and change the music.
 - Display mode switch portrait to landscape and vise versa.



Blackberry OS

- ❖ It is a proprietary operating system designed for blackberry smartphones produced by Research In Motion Limited (RIM).
- ❖ Architecture of blackberry OS is not revealed.
- ❖ It has a very good email system at user level.
- ❖ It supports instant mailing while maintaining high level of security through on-device hardware based message encryption.

