MOBILE OPERATING SYSTEM

INTRODUCTION

Mobile technology is one of the most widely used technologies today, encompassing devices like smartphones, laptops, and GPS systems. Its rapid growth has transformed daily life and business operations. Tasks that once required visiting banks or offices can now be done through mobile phones. Wireless communication has significantly improved, making information more accessible. Mobile networks continue to invest in expanding data coverage, benefiting users in various ways. From instant document sharing to advancements in healthcare, mobile technology is reshaping industries and enhancing global connectivity.

WHAT IS MOBILE OPERATING SYSTEM?

A mobile operating system (OS) is software that allows smart phones, tablet PCs and other devices to run applications and programs. A mobile operating system (OS) is software that allows smart phones, tablet PCs and other devices to run applications and programs. A mobile OS typically starts up when a device powers 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.

A mobile OS is a software platform on top of which other programs called application programs, can run on mobile devices such as PDA, Cellular phones, Smartphones etc. There are many mobile operating systems. The following demonstrates the most important ones:

1. Java Platform
2. Palm OS
3. Symbian OS
4. Windows Mobile OS
5. Blackberry OS
6. iPhone OS
7. Google ‘s Android Platform

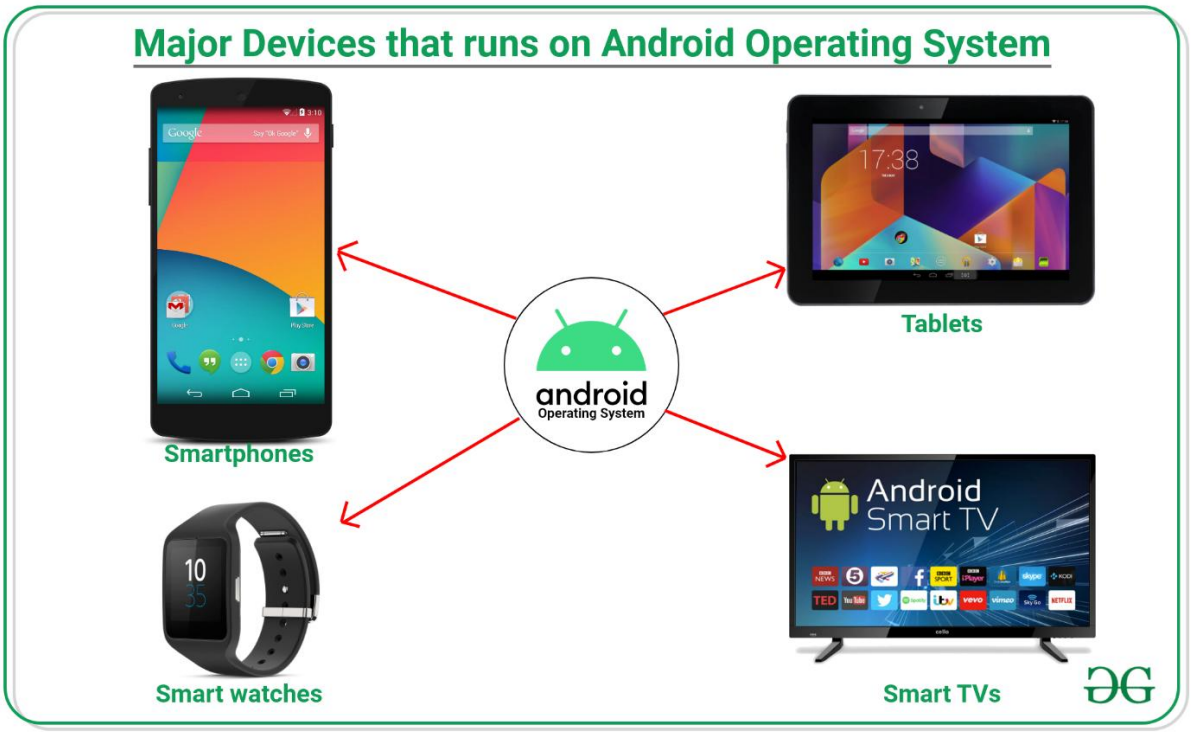
- **Android Mobile Operating System:**

Android operating system is the largest installed base among various mobile platforms across the globe. Hundreds of millions of mobile devices are powered by **Android** in more than 190 countries of the world. It conquered around **71%** of the global market share by the end of 2021, and this trend is growing bigger every other day. The company named **Open Handset Alliance** developed Android for the first time that is based on the modified version of the Linux kernel and other open-source software. **Google** sponsored the project at initial stages and in the year 2005, it acquired the whole company.

In September 2008, the first Android-powered device was launched in the market. Android dominates the mobile OS industry because of the long list of features it provides. It’s user-friendly, has huge community support, provides a greater extent of customization, and a large

number of companies build Android-compatible smartphones. As a result, the market observes a sharp increase in the demand for developing Android mobile applications, and with that companies need smart developers with the right skill set.

At first, the purpose of Android was thought of as a mobile operating system. However, with the advancement of code libraries and its popularity among developers of the divergent domain, Android becomes an absolute set of software for all devices like tablets, wearables, set-top boxes, smart TVs, notebooks, etc.



Features of Android Mobile Operating System

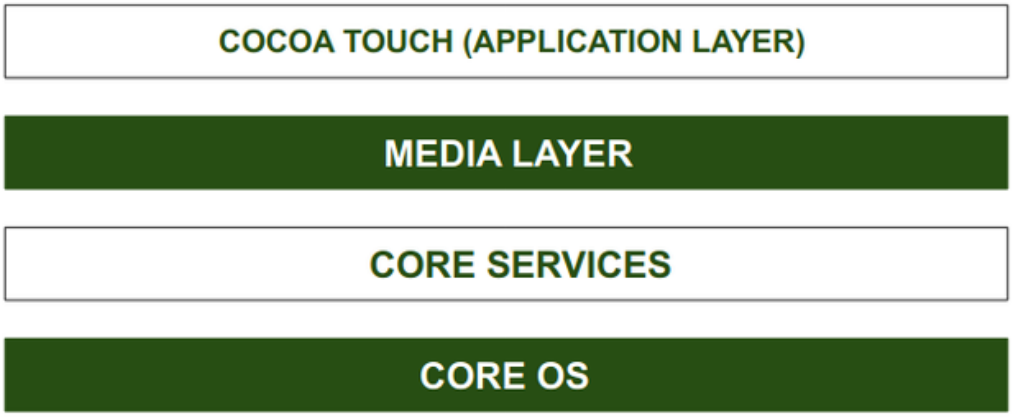
1. **Open-Source Platform** – Android is an open-source OS, allowing manufacturers and developers to customize it freely.
2. **Wide Device Compatibility** – Available on a variety of smartphones, tablets, smart TVs, and wearable devices from multiple manufacturers.
3. **Google Play Store** – Provides access to millions of apps, games, and services.
4. **Multitasking & Split-Screen** – Supports running multiple apps simultaneously, including split-screen functionality.
5. **Customization** – Users can personalize home screens, widgets, themes, and install third-party launchers.
6. **Google Assistant & AI Integration** – Features advanced AI-powered voice assistant and smart recommendations.
7.

- **IOS Mobile Operating System:**

IOS is a mobile operating system that Apple Inc. has designed for its iPhones, iPads, and Apple mobile devices. IOS is a mobile operating system and is the second most popular and widely used after Android.

The structure of the iOS operating system is Layered based. Its communication doesn't occur directly. The layers between the Application Layer and the Hardware layer will help with Communication. The lower level gives basic services on which all applications rely and the higher-level layers provide graphics and interface-related services. Most of the system interfaces come with a special package called a framework.

A framework is a directory containing dynamic shared libraries, such as. files, header files, images, and helper applications that support the library. Every layer has its associated frameworks useful for a developer.



Features of iOS (Apple Mobile Operating System)

1. **Closed-Source & Secure –** iOS is a proprietary operating system with strict security measures, reducing vulnerabilities.
2. **Seamless Ecosystem –** Integrates smoothly with Apple devices like Mac, iPad, Apple Watch, and Apple TV.
3. **App Store & Strict App Review –** The Apple App Store offers high-quality apps with a rigorous security review process.
4. **Smooth & Optimized Performance –** iOS is highly optimized for Apple hardware, ensuring fast and consistent performance.
5. **Regular & Timely Updates –** Apple provides frequent software updates and security patches to all compatible devices.

- **HarmonyOS NEXT:**

Huawei's HarmonyOS, known as Hongmeng in China, has evolved significantly. The new version, HarmonyOS NEXT, abandons Linux and Android Open-Source Project foundations, opting for a completely independent architecture built around Huawei's kernel. This means, unlike its predecessors, HarmonyOS NEXT does not support Android apps, signalling a complete break from the Google-controlled ecosystem.

This move is part of Huawei's broader strategy to create a self-sufficient software environment that can compete directly with Android and iOS. According to Yu, this ground-up approach reportedly yields 30% better performance and 20% lower power consumption. HarmonyOS NEXT boasts several innovative features.

Star Shield Security is designed to enhance user privacy and data protection, addressing growing concerns over digital security. On the other hand, Harmony Intelligence uses advanced AI to provide smarter and more intuitive user interactions. This offers a more frictionless and possibly more secure user experience, potentially pointing to a new direction for mobile operating systems.

Features of Huawei's HarmonyOS

1. **Multi-Device Collaboration** – Connects and controls multiple Huawei devices as one.
2. **Super Device Feature** – Enables easy file sharing and multitasking across devices.
3. **Enhanced Security & Privacy** – Isolates critical functions and strengthens encryption.
4. **Distributed File System** – Access files across devices without transfers.
5. **Battery Optimization** – Reduces background activity for longer battery life.
6. **No Google Services** – Uses **Huawei Mobile Services (HMS)** instead of Google Play Services.

Future Trends of Mobile Operating System

1. Cross platform and Ecosystem Integration: Devices work together better these days. Apple and Google want their phones, tablets, watches, and smart home stuff to feel like one big happy family. Huawei's HarmonyOS tries this too - a single OS for various gizmos, making them work as a united pack.
2. A.I. and machine learning will become more vital parts of mobile O.S. They will aid customized experiences, predictive text/actions, better photography tools, and smarter virtual helpers.
3. 5G networks are rolling out globally;
   mobile O.S are evolving for enhanced connection abilities. Expect faster internet, handling data-heavy tasks, supporting AR/VR apps, and improved IoT device linking.