

MOBILE DEVICE TECHNOLOGIES - I

Mobile application development

Mobile application development is the process by which application software is developed for small low-power handheld devices such as personal digital assistants, enterprise digital assistants or mobile phones. These applications are either pre-installed on phones during manufacture, or downloaded by customers from various mobile software distribution platforms.

Execution environments

Android, iOS, BlackBerry, HP webOS, Symbian OS, and Windows Mobile support typical application binaries as found on personal computers with code which executes in the native machine format of the processor (the ARM architecture is a dominant design used on many current models). Windows Mobile can also be compiled to x86 executables for debugging on a PC without a processor emulator, and also supports the Portable Executable (PE) format associated with the .NET Framework. Windows Mobile, HP webOS and iOS offer free SDKs and integrated development environments to developers.

Platform development environment

Each of the platforms for mobile applications also has an integrated development environment which provides tools to allow a developer to write, test and deploy applications into the target platform environment.

The following table summarizes the elements in each of the development environments.

Mobile application testing

The application is first tested within the development environment using emulators. Later it is subjected to field testing. Emulators provide inexpensive way to test the applications on mobile phones to which we may not have physical access. Here is a list of free tools for testing application across the most popular mobile operating systems.

- Google Android Emulator

It is Android Emulator which is patched to run on a Windows PC as a standalone app without having to download and install the complete and complex Android SDK, and can be even installed and android compatible apps can be tested on it.

- Official Android SDK Emulator

It includes a mobile device emulator which mimics all of the hardware and software features of a typical mobile device (without the calls).

- MobiOne

MobiOne Developer is a mobile Web IDE for Windows that helps developers to code, test, debug, package and deploy mobile Web applications to devices such as iPhone, BlackBerry, Android, and the Palm Pre.

- TestiPhone

It is a web browser based simulator for quickly testing iPhone web applications. This tool has been tested and works using Internet Explorer 7, Firefox 2 and Safari 3.

- iPhoney

It gives a pixel-accurate web browsing environment and it is powered by Safari. It can be used while developing web sites for the iPhone. It is not an iPhone simulator but instead is designed for web developers who want to create 320 by 480 (or 480 by 320) websites for use with iPhone. iPhoney will only run on Mac OS X 10.4.7 or later.

- BlackBerry Simulator

There are a variety of official BlackBerry simulators available to emulate the functionality of actual BlackBerry products. With any of the BlackBerry device simulators, we can test how the BlackBerry device software, screen, keyboard and track wheel will work with application.

Mobile device management

Mobile Device Management (MDM) software secures monitors, manages and supports mobile devices deployed across mobile operators, service providers and enterprises. MDM functionality typically includes over-the-air distribution of applications, data and configuration settings for all types of mobile devices, including mobile phones, smart phones, tablet computers, ruggedized mobile computers, mobile printers, mobile POS devices, etc. This applies to both company-owned and employee-owned (BYOD) devices across the enterprise or mobile devices owned by consumers.

By controlling and protecting the data and configuration settings for all mobile devices in the network, MDM can greatly reduce support costs and business risks. The intent of MDM is to optimize the functionality and security of a mobile communications network while minimizing cost and downtime.

With mobile devices becoming ubiquitous and applications flooding the market, mobile monitoring is growing in importance.^[5] Numerous vendors help mobile device manufacturers, content portals and developers, test and monitor the delivery of their mobile content, applications and services. This testing of content is done real time by simulating the action of thousands of customers and detecting and correcting bugs in the applications.

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