Architectures of mobile devices

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I. What are the architectures of mobile devices?

Architectures of mobile devices refer to the internal structure and design of the hardware and software components that make up devices such as smartphones and tablets. These architectures evolve over time to meet increasing demands in performance, energy efficiency, and functionality.

II. Characteristics

The features of application architectures have undergone changes. Previously, a 3-layer architecture was employed with mobile client, server, and database, being transactional and supporting offline modes with synchronization. Examples of typical applications included sales force automation.

Currently, application architecture takes a multi-layered, service-oriented approach, exemplified by platforms like Twitter, Facebook, AWS, and maps. Large volumes of information are handled, applying Big Data and NoSQL database technologies, as well as large-scale processing and the creation of applications for multiple platforms. Current applications learn from previous information, context, user interaction, user preferences, and data from other users, in addition to recognizing patterns in the environment, images, gestures, sounds, and movements.

III. Use in operating systems

A. Andriod

The architecture of the Android mobile platform consists of four layers: a Linux-based kernel, libraries (including basic functions of the virtual machine), Android runtime (with functions in Java), and an application framework that simplifies reuse and shares APIs. Applications on Android include a browser, email, and others written in Java or C/C++.

B. IOS

In iOS, the application layer within the framework is called Cocoa Touch, structured into Core OS (containing the kernel and drivers), Core Services (offering basic services), Media (providing graphics and multimedia services), and Cocoa Touch as a key framework for iOS applications. Applications on iOS, such as a browser, calendar, and games, are written in Objective-C.

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C. Windows Phone 7 (WP7)

Windows Phone 7 (WP7) has a runtime environment with integrated Silverlight and XNA, using Visual Studio and Expression Blend as development tools. It utilizes cloud services like Windows Azure and Xbox Live, with a Marketplace for application certification and registration.

References

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