

Smartphone OSs

iOS Architecture

iOS Architecture

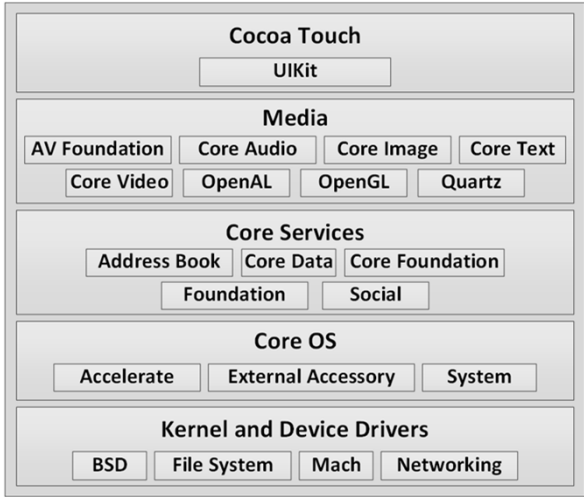
❖ Overview of iOS (SDK) Architecture

- iOS Architecture consists of 4 distinct layers & Kernel
 - Cocoa touch layer
 - Media services layer
 - Core services layer
 - Core OS layer
 - Kernel and Device Drivers

SDK: Software Development Kit

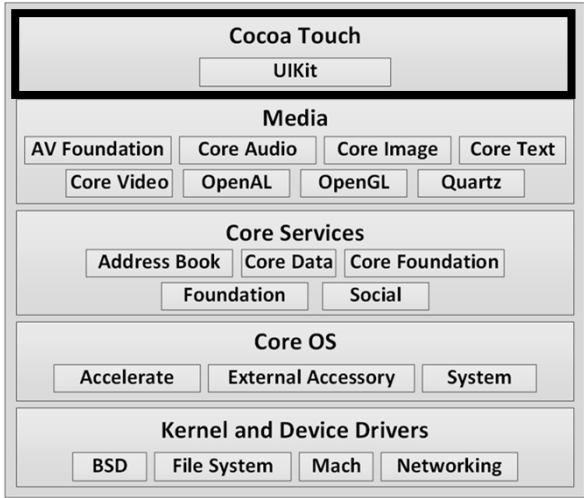
iOS Architecture

❖ Overview of iOS (SDK) Architecture



iOS Architecture

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iOS Architecture

❖ Cocoa Touch Layer

- Top layer of the iOS architecture
- Contains the key framework UIKit
- Defines the basic application infrastructure
- Provides core functionality
 - Multitasking & Touch-based input
- Provides many high level features
 - Auto Layout & Gesture Recognizer
 - Document Support & Printing

iOS Architecture

❖ Cocoa Touch Layer

- Primarily written in Objective-C
- Contents
 - UIKit Framework
 - Map Kit Framework
 - Push Notification Service
 - Message UI Framework
 - ...

iOS Architecture

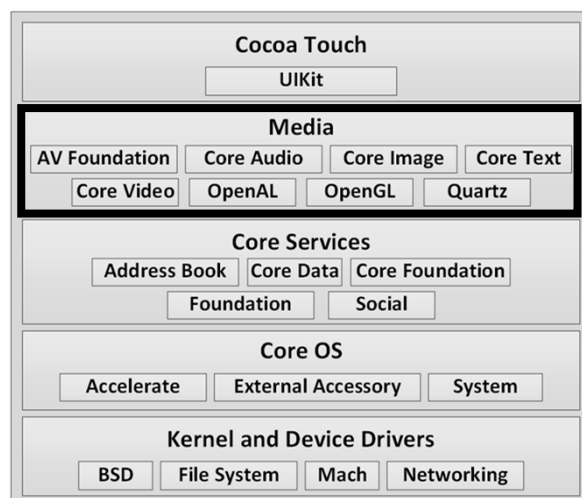
❖ Cocoa Touch Layer

▪ Contents

- Address Book UI Framework
- Game Kit Framework
- Event Kit UI Framework
- Accounts Framework
- Social Framework

iOS Architecture

❖ Overview of iOS Architecture



iOS Architecture

❖ Media Layer

- Provides iOS the functionality of audio, video, animation, and graphics

Contents

- Core Video Framework
- Core Text Framework
- Image I/O Framework
- Assets Library Framework
- Core Graphics Framework
- Core Image Framework
- Quartz Core Framework

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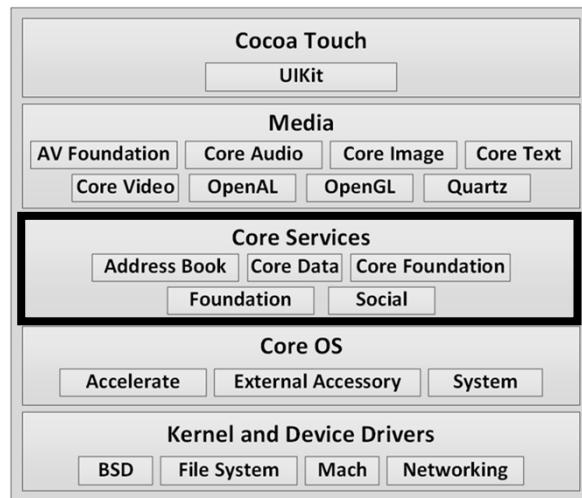
❖ Media Layer

▪ Contents

- GLKit Framework (GL: Graphics Library)
- OpenGL ES Framework (ES: Embedded Systems)
- NewsstandKit Framework
- iOS Audio Support
- AV Foundation Framework
- Core Audio Frameworks
- Open Audio Library
- Media Player Framework
- Core Midi Framework

iOS Architecture

❖ Overview of iOS Architecture



iOS Architecture

❖ Core Services Layer

- Manages the fundamental system services for native iOS apps
- Provides key features
 - Block objects
 - Grand Central Dispatch
 - In-App Purchase
 - iCloud Storage

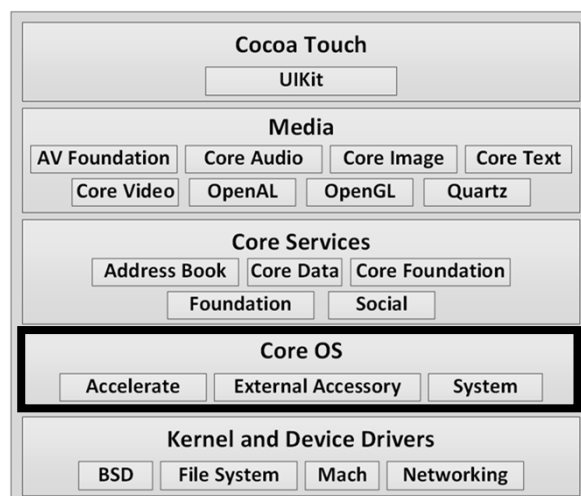
iOS Architecture

❖ Core Services Layer

- Contents
 - Foundation Framework
 - Address Book Framework
 - CF (Core Foundation) Framework
 - CFNetwork Framework
 - Core Data Framework
 - Core Media Framework
 - Core Telephony Framework
 - EventKit Framework

iOS Architecture

❖ Overview of iOS Architecture



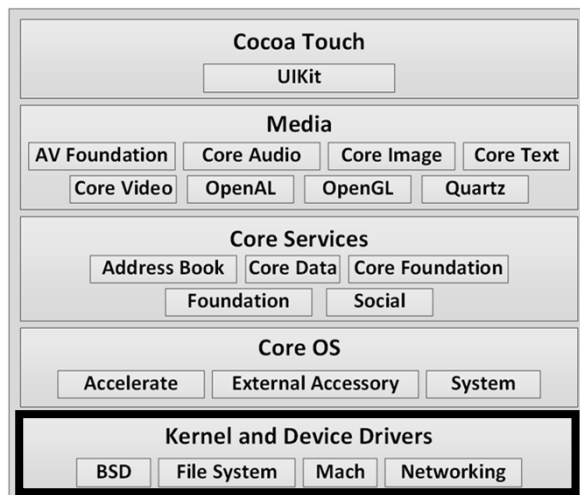
iOS Architecture

❖ Core OS Layer

- Provides processing, interfacing, and security support for iOS applications
- Encapsulates the kernel environment and low level UNIX interfaces
- Contents
 - Accelerate Framework
 - External Accessory Framework
 - Security Framework
 - System

iOS Architecture

❖ Overview of iOS Architecture



iOS Architecture

❖ Kernel and Device Drivers

- Lowest layer of the iOS architecture
- Formed of the Kernel and Device Drivers
- Kernel environment is built on top of the Mach 3.0 (μ -kernel technology)
- Provides high-performance networking facilities

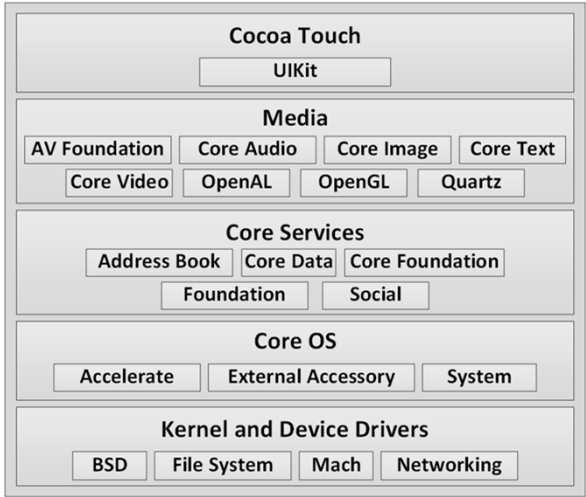
iOS Architecture

❖ Kernel and Device Drivers

- Supports multiple integrated file systems
- Contents
 - BSD (Berkeley Software Distribution)
 - File System
 - Mach microkernel technology
 - Networking

iOS Architecture

❖ iOS Layers & Components



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References

References

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