Distributed Systems – Short Tutorial

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Platform Internals

Linux Kernel
Hardware Abstraction Layer

Security
- Process Management
- Memory Management
- Network Stack
- I/O
  - Display
  - Keypad
  - Touchscreen
- Power Management
- Other Drivers
  - WiFi, Bluetooth, Camera
  - Audio, Telephony, Flash
  - Sensors

Android Application A
Dalvik Virtual Machine

Android Application B
Dalvik Virtual Machine

Android Application C
Dalvik Virtual Machine

Linux User A

Linux User B

Linux User C

Hardware

Source: Conder, Darcey: Android Wireless Application Development, Addison-Wesley (p.24)
Android Key Terms

- **Activity**
  - Logical unit of a user activity (cf. window in a computer program)
  - Usually full-screen (cf. Fragments)

- **View**
  - Hierarchical UI element
  - Combined in layouts and extended to Widgets with more functionality

- **Service**
  - Background activity without UI, e.g., music player or FTP server
Android Key Terms

«Intent»
- Starts or switches between «Activities»
- Passive data structure
- Describes the action
  - An explicit class to activate
  - Or Implicit components that match an «Intent filter»

«BroadcastReceiver»
- Listens for global events (Intents)
  - e.g., «headphones were plugged» sent by system
- Can delegate to preferred Activity
- Can inform the user
Activity Lifecycle

- Multi-Tasking
  - OS keeps apps alive as long as possible
  - On memory shortage, processes are killed according to their priority

- States of an Activity
  - Running (Resumed)
  - Paused
  - Stopped
  - Finished/killed