Overview of Android: The OS Kernel Layer

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Learning Objectives in this Part of the Lesson

- Understand common hardware elements in Android
- Recognize key characteristics of the Android Linux kernel
  - e.g., its purpose & its extensions to GNU Linux
Overview of the Android Linux Kernel
Overview of Android Layers: Android Linux Kernel

- Android Linux is a variant of the GNU Linux operating system (OS) kernel

See en.wikipedia.org/wiki/Linux_kernel
Overview of Android Layers: Android Linux Kernel

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Android Linux kernel is written in C & ships separately from rest of Android platform stack

See source.android.com/source/building-kernels.html#downloading-sources
Overview of Android Layers: Android Linux Kernel

- Android Linux is a variant of the GNU Linux operating system (OS) kernel
- Optimized to meet the needs of mobile devices & apps

See en.wikipedia.org/wiki/Android_(operating_system)#Linux_kernel
Overview of Android Layers: Android Linux Kernel

- Android Linux is a variant of the GNU Linux operating system (OS) kernel
- Optimized to meet the needs of mobile devices & apps
- Shields higher Android layers from hardware diversity

See en.wikipedia.org/wiki/List_of_Linux-supported_computer_architectures
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- Optimized to meet the needs of mobile devices & apps
- Shields higher Android layers from hardware diversity
- Mediates access to—and sharing of—hardware resources

See en.wikipedia.org/wiki/Kernel_(operating_system)#Functions_of_the_kernel
Overview of Android Layers: Android Linux Kernel

• Android Linux is a variant of the GNU Linux operating system (OS) kernel
  • Optimized to meet the needs of mobile devices & apps
  • Shields higher Android layers from hardware diversity
  • Mediates access to—and sharing of—hardware resources
• Extends GNU Linux

See elinux.org/Android_Kernel_Features
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- Extends GNU Linux, e.g.
  - conserve memory
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See [elinux.org/Android_Mainlining_Project](elinux.org/Android_Mainlining_Project)
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Overview of Android Layers: Android Linux Kernel

• The Android Linux kernel is a forked version of the GNU Linux kernel

See en.wikipedia.org/wiki/Fork_(software_development)
Overview of Android Layers: Android Linux Kernel

• The Android Linux kernel is a forked version of the GNU Linux kernel
• It therefore isn’t entirely compatible with the GNU Linux kernel

However, Android Linux kernel offers familiar/robust capabilities for mobile apps
End of the Overview of Android: The OS Kernel Layer