

Managing the Java Thread Lifecycle: Layers Involved in Starting a Thread



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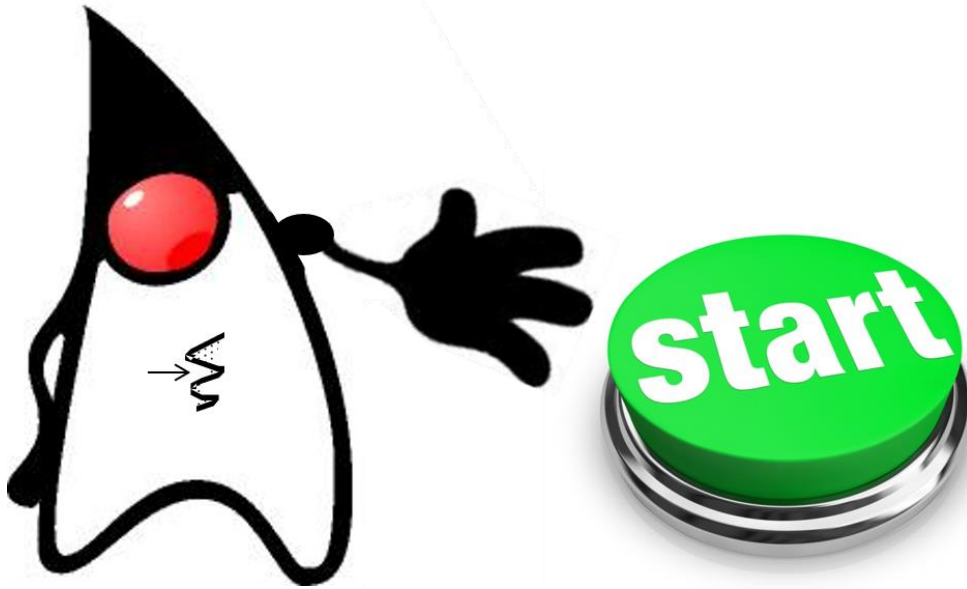
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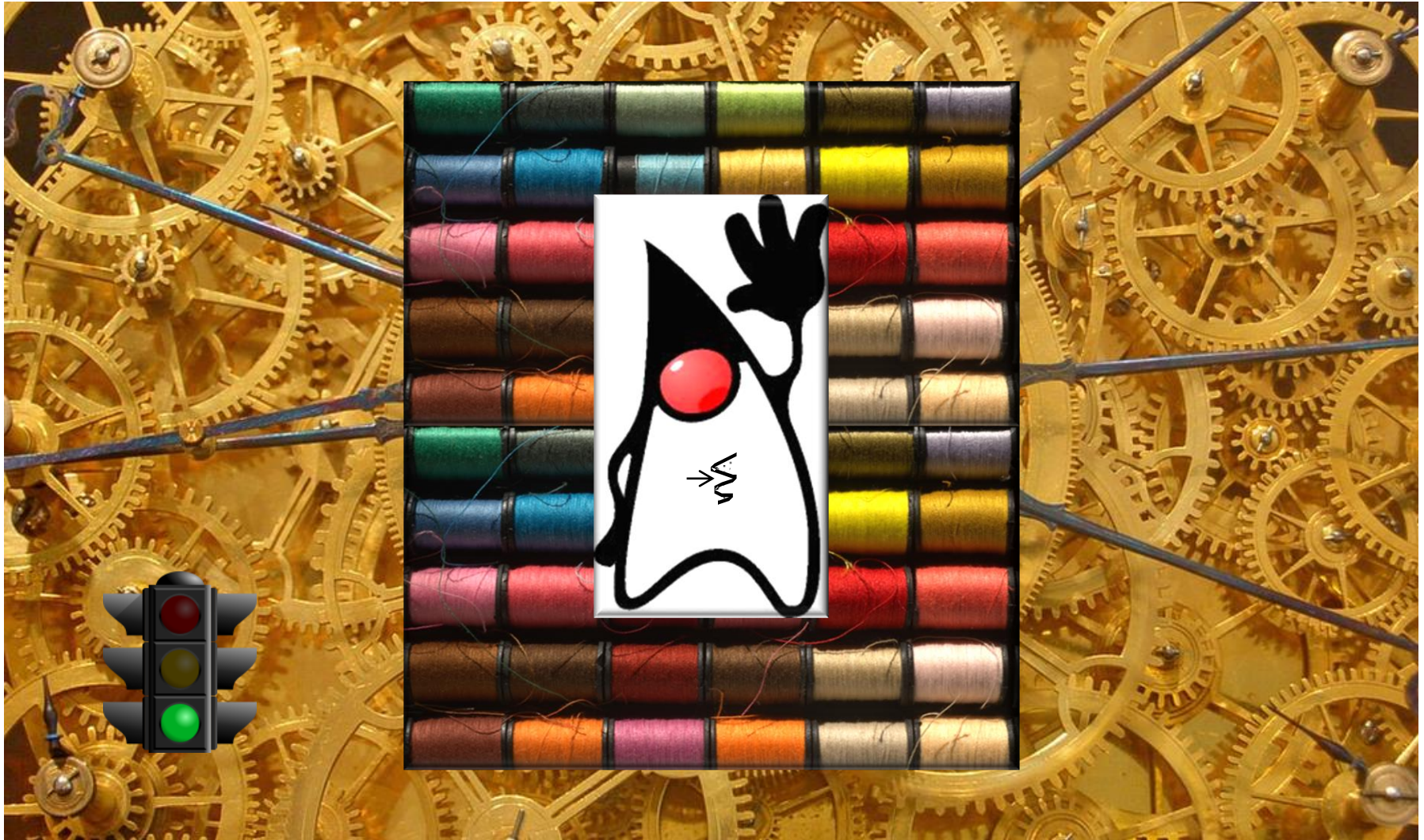
Learning Objectives in this Lesson

- Understand the layers involved in starting a Java thread



Layers Involved in Starting a Java Thread

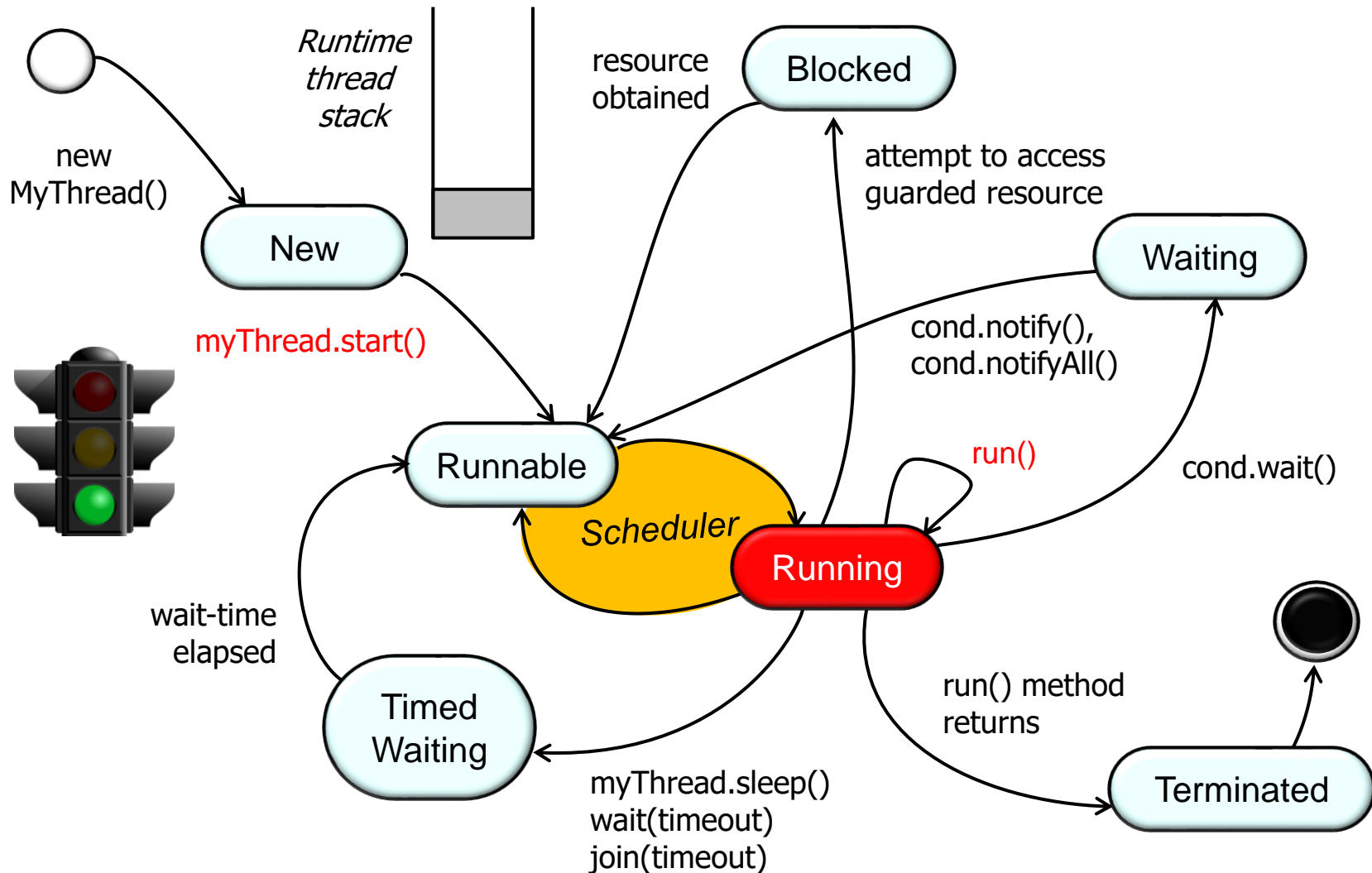
- Starting a Java thread involves interesting design & implementation issues



Layers Involved in Starting a Java Thread

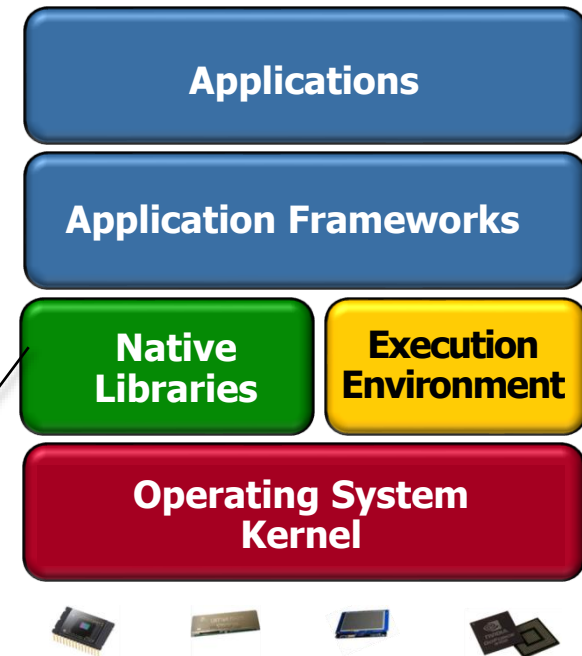
Layers Involved in Starting a Java Thread

- Calling `start()` on a thread triggers the execution of its `run()` hook method



Layers Involved in Starting a Java Thread

- The Java platform provides a stack of layers that define various mechanisms for running concurrent programs on a wide range of computing devices

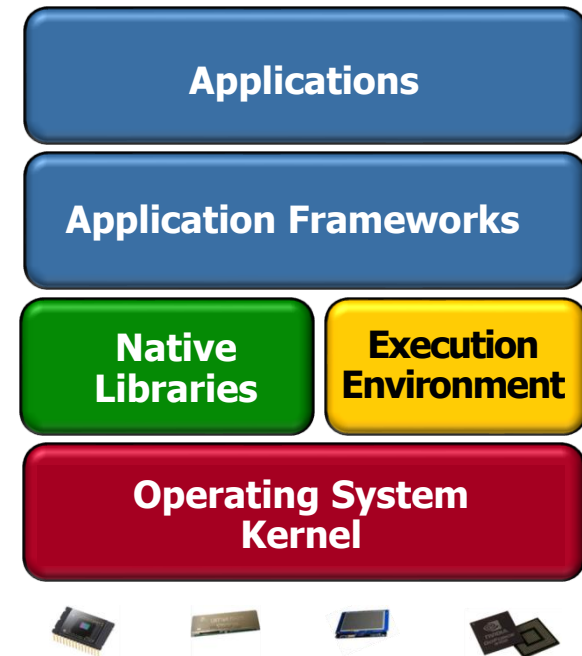
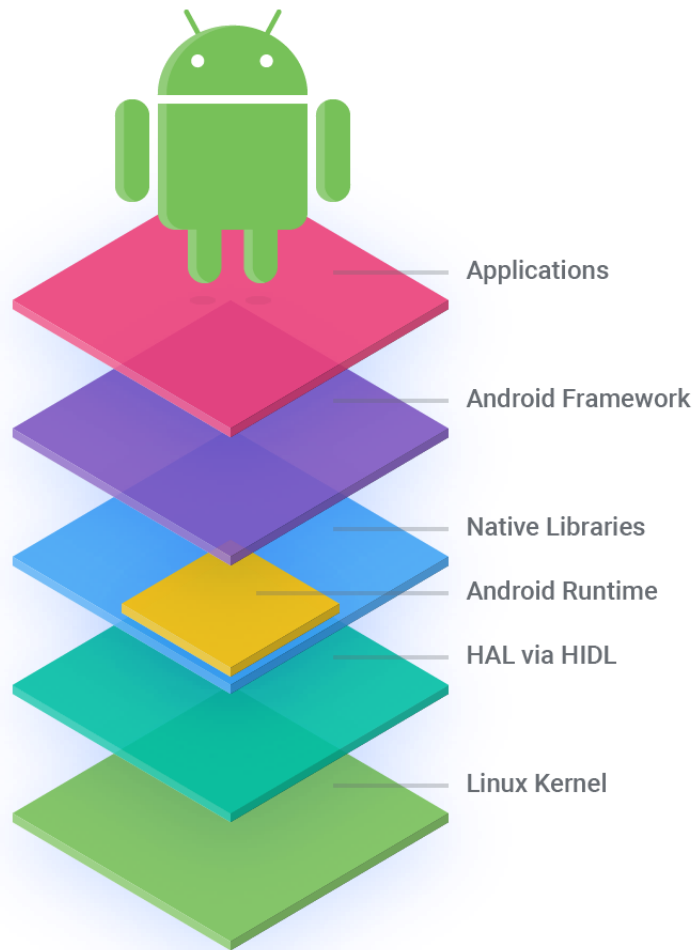


Different versions of Android & Java implement these layers differently, though key levels of abstraction are often similar

See en.wikibooks.org/wiki/Java_Programming/The_Java_Platform

Layers Involved in Starting a Java Thread

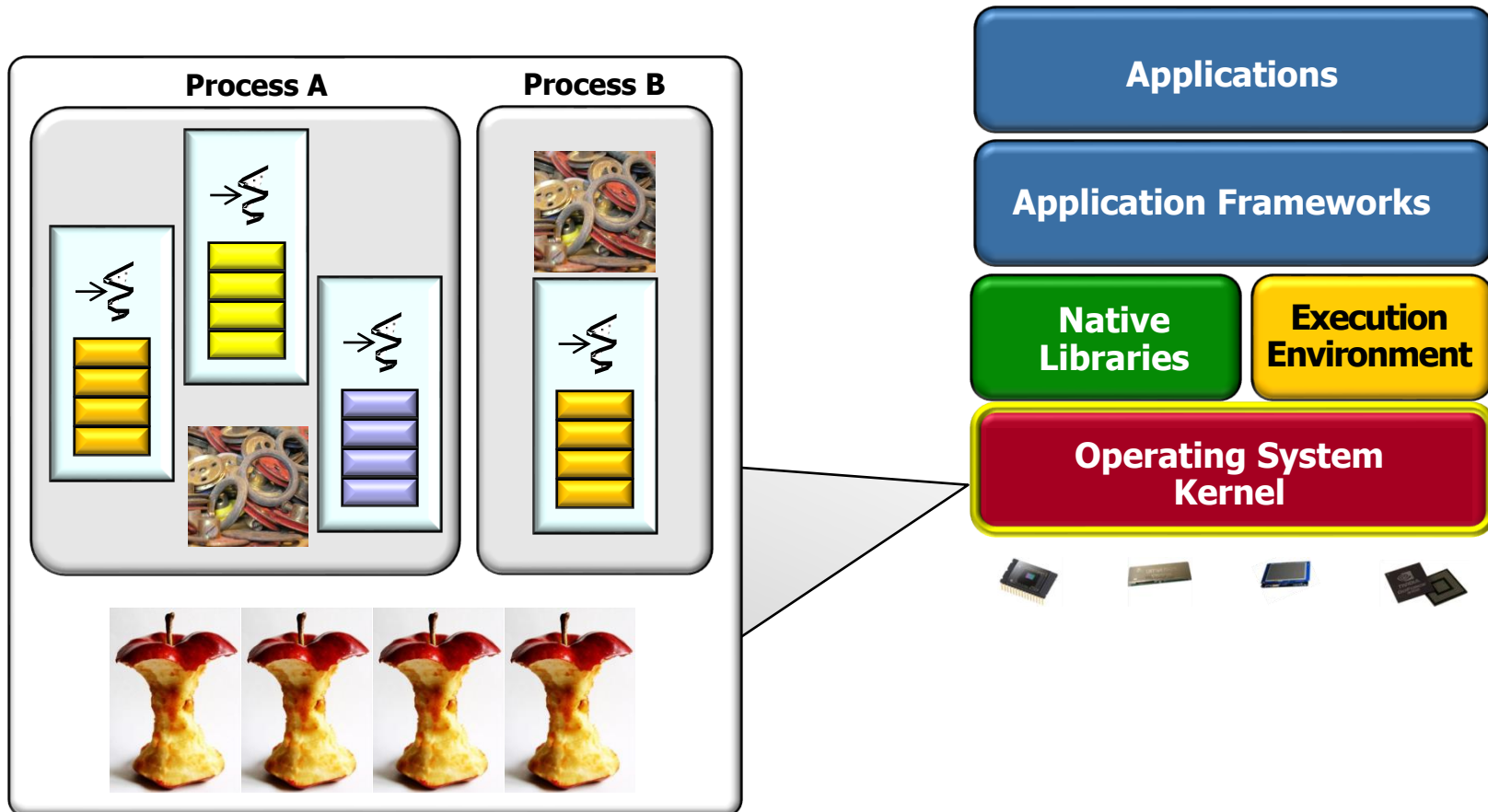
- Likewise, the Android platform provides a stack of layers that define various mechanisms for running concurrent programs on mobile computing devices



See developer.android.com/guide/platform

Layers Involved in Starting a Java Thread

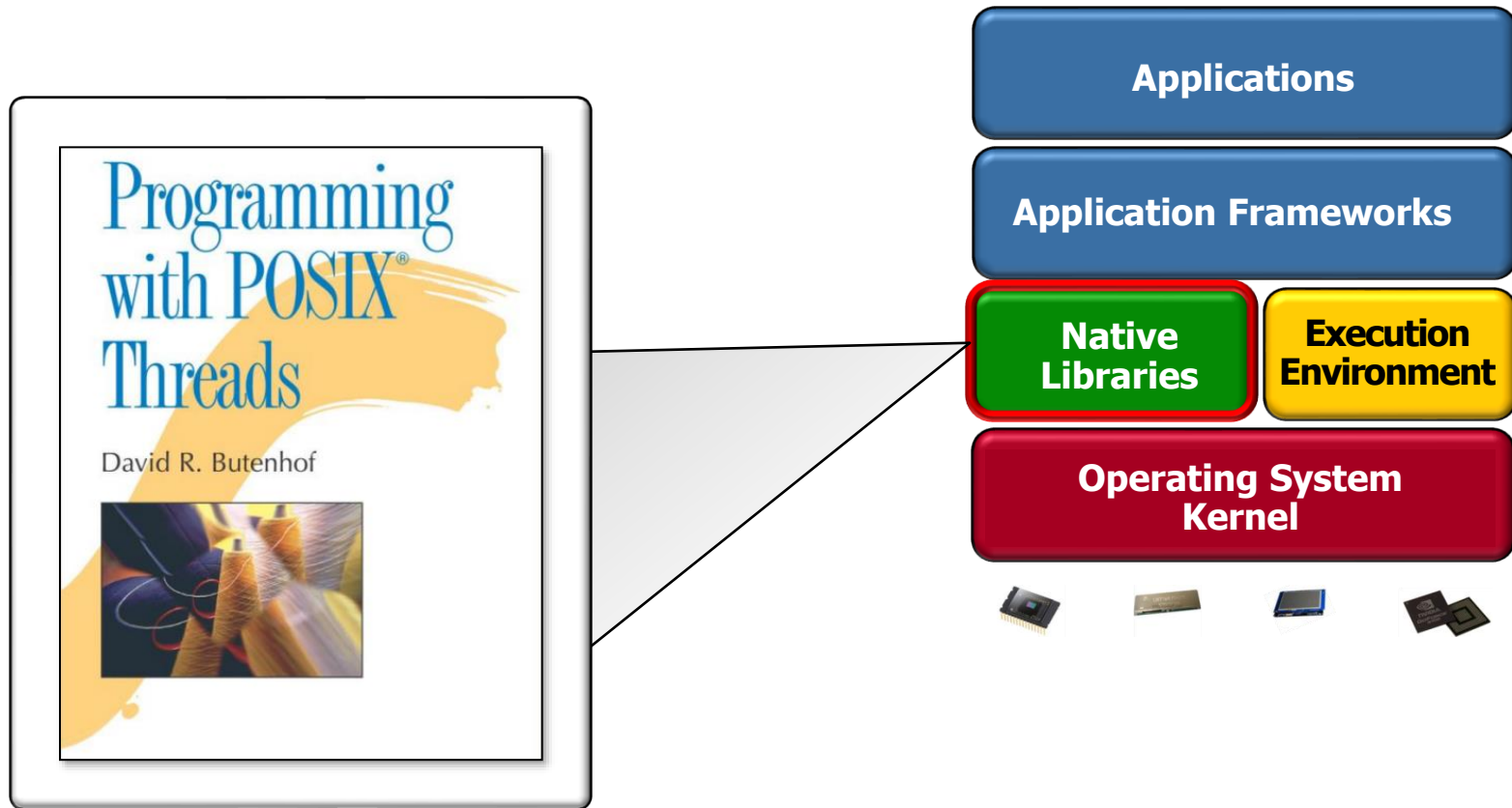
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The Android Linux kernel controls hardware & manages system resources

Layers Involved in Starting a Java Thread

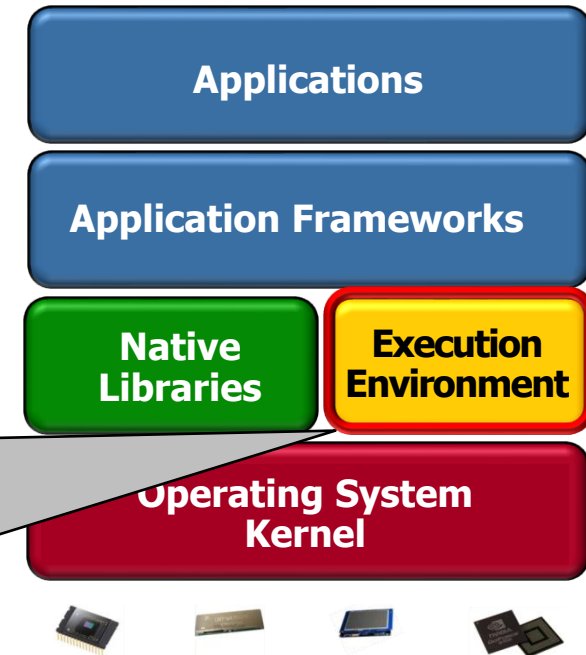
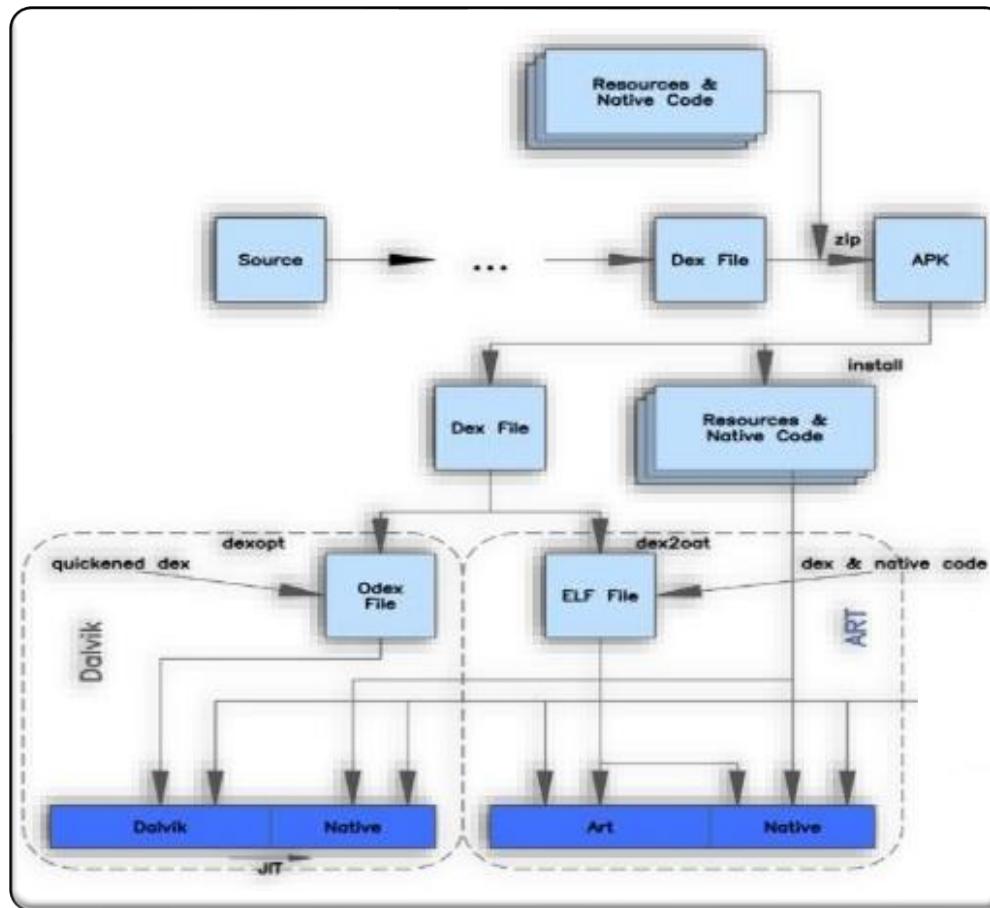
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The Bionic LibC library supports the Pthreads C programming APIs

Layers Involved in Starting a Java Thread

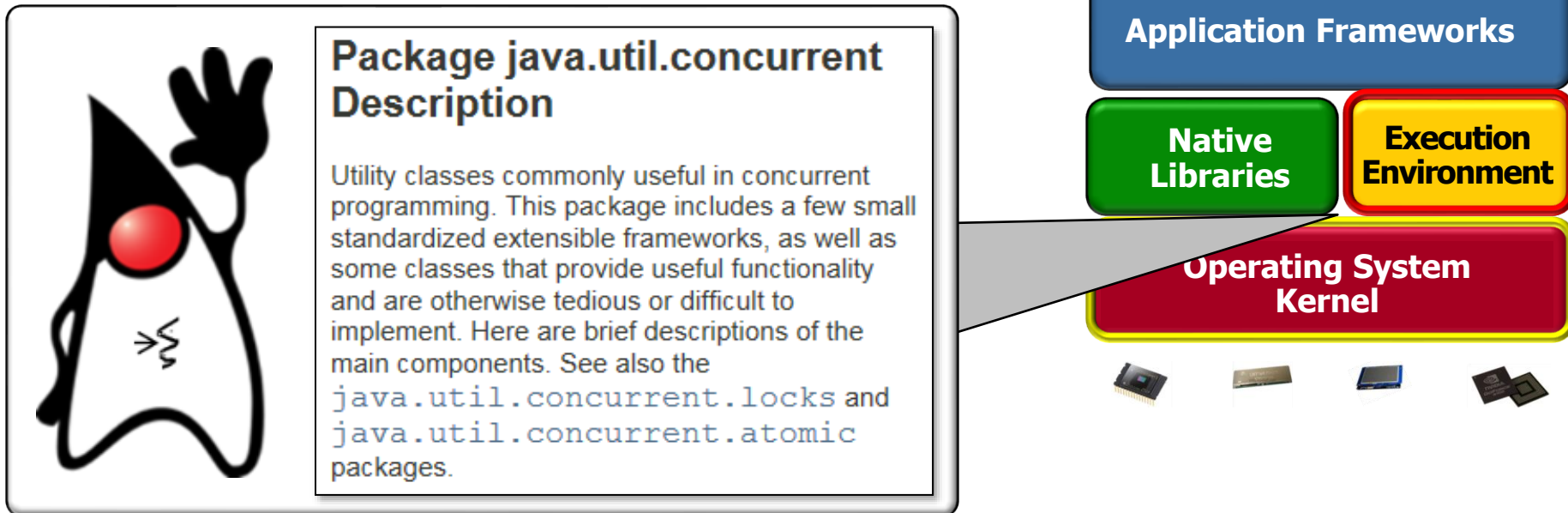
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Dalvik & ART provide a managed execution environment for Java apps

Layers Involved in Starting a Java Thread

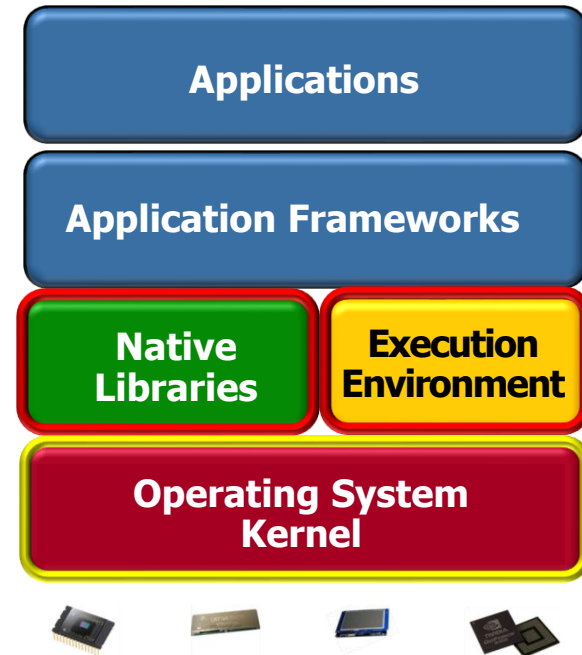
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Android's runtime contains the classes in the `java.util.concurrent` packages

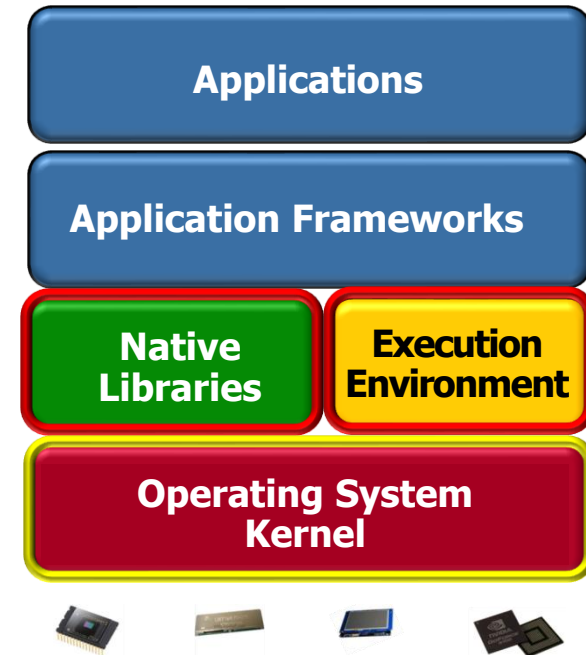
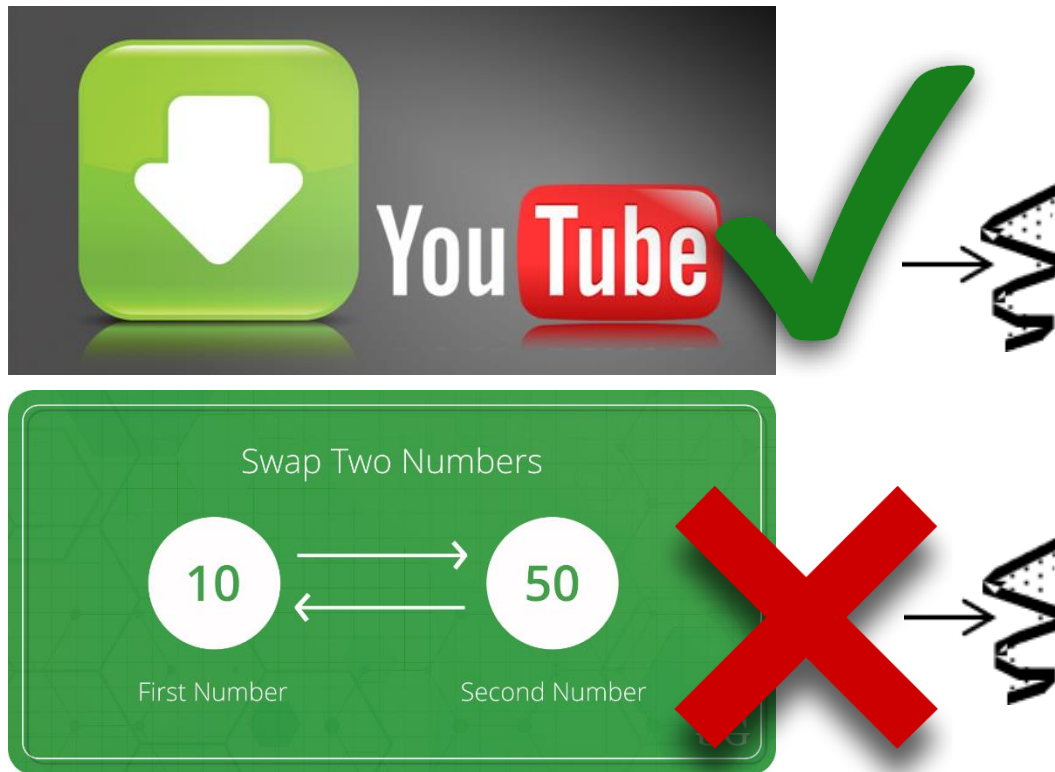
Layers Involved in Starting a Java Thread

- Creating & starting new threads on any Java platform consumes a non-trivial amount of system resources, so use them judiciously!



Layers Involved in Starting a Java Thread

- Creating & starting new threads on any Java platform consumes a non-trivial amount of system resources, so use them judiciously!
 - e.g., only create threads for computations that run much longer than the time needed to spawn them!



End of Managing the Java Thread Lifecycle: Layers Involved in Starting a Thread