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Embedded Android: Strengths and Weaknesses

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Summary

- Evolution
- Is Android Embedded ?
- Start with Android
- Pros and Cons

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Evolution

- Android Inc founded in 2003
- Acquired by Google in 2005
- Open Handset Alliance founded in 2007
  (Samsung, LG, HTC, TI, Nvdia, Intel,ARM, TMobile, Google, ...)
- HTC Dream in 2008

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Evolution

http://faqoid.com/advisor/android-versions.php

- Tablet version: February 2011
- Merge phone / tablet: Octobre 2011

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Evolution

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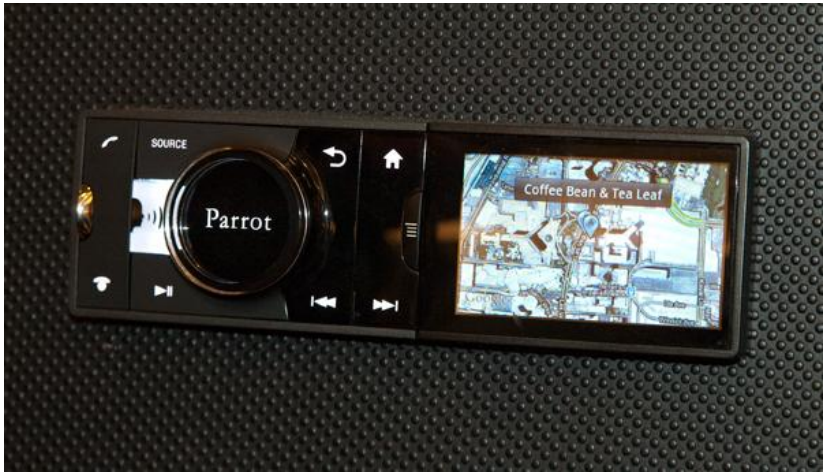
Evolution

Car radio :

- Clarion Mirage IVI (Android 2.2 - Froyo)
- Parrot Asteroid (Android 1.5 - Cupcake)



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Evolution

Watch :

- Sony Ericsson LiveView
- VEGA Android Watch
- I'm Watch

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Evolution

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Non mobile devices :

- Connected TV
- Set top boxes
- Bus Shelter
- etc.

Is Android Embedded?

- Compatibility Definition Document (JellyBean 4.1) :
  - 340 Mo RAM
  - OpenGL ES 1.0 et 2.0
  - Browser < 1300 ms
- Gingerbread (2.3)
  - 128 Mo RAM

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Is Android Embedded?

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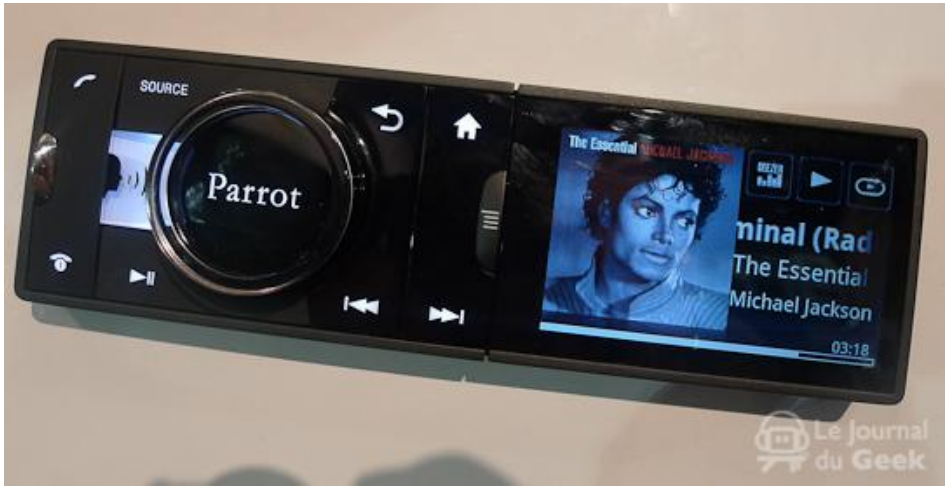
- Parrot Asteroid :
  - Android 1.5
  - 468 Mhz
  - 256 RAM



Is Android Embedded?

- Portability
  - ARM
  - x86
  - MIPS
  - Power Architecture

ARM. POWERED

intel®

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Start with Android

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- Android Open Source Project
  - http://source.android.com
  - ~ 6 Go
  - Apache License
- OS = AOSP + Hardware Support
- Hardware :
  - Kernel (android patch)
  - Drivers / library (blob)

Start with Android

- Flagship devices AOSP
  - Nexus : Galaxy, 10, 7, 4
  - Motorola Xoom
  - Pandaboard (experimental)

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Start with Android

- Ask your manufacturer
  - Boards available for all Android version
  - Should provide:
    - Kernel
    - Hardware support libraries
    - AOSP patches

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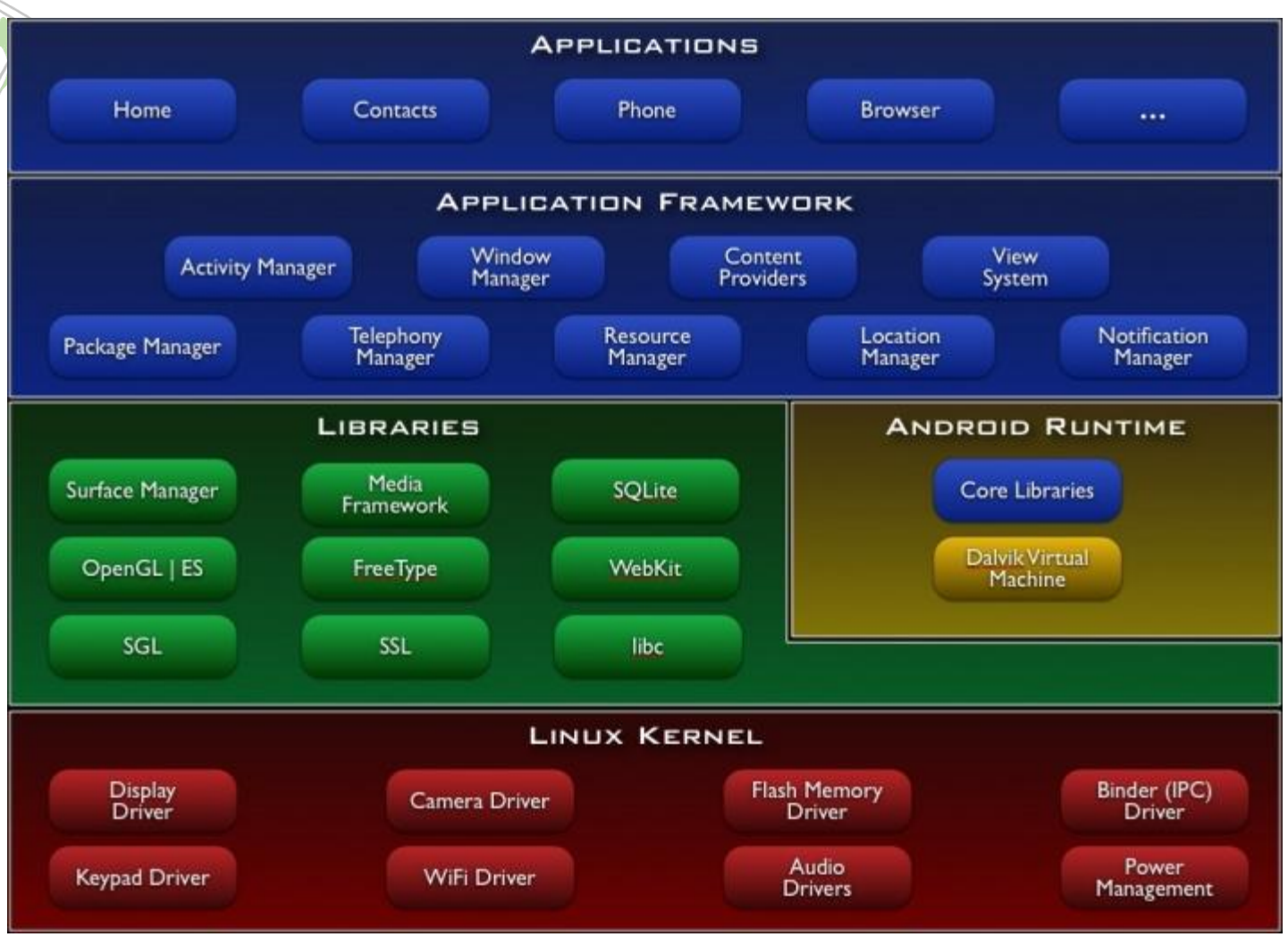
Start with Android



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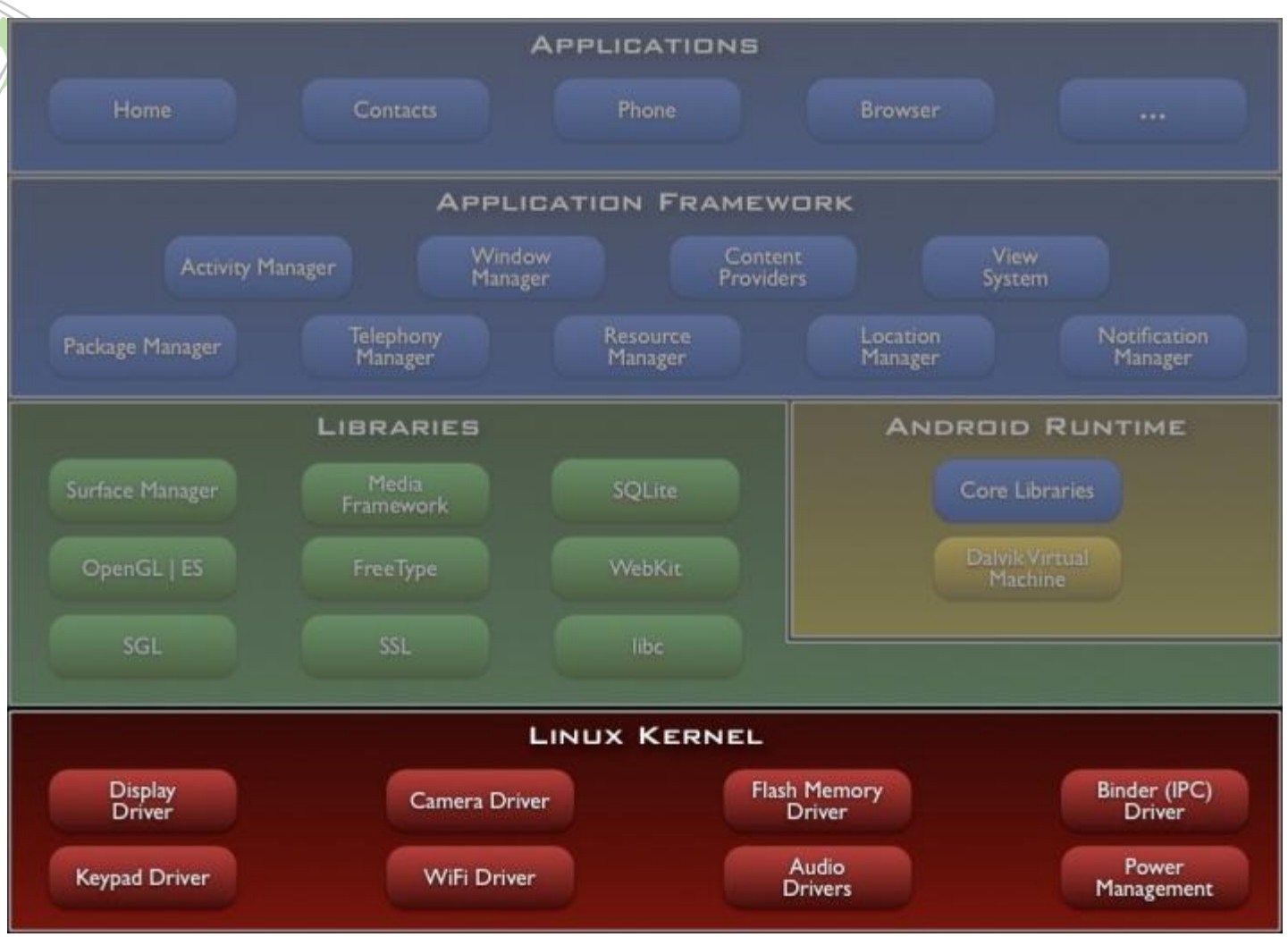
Start with Android



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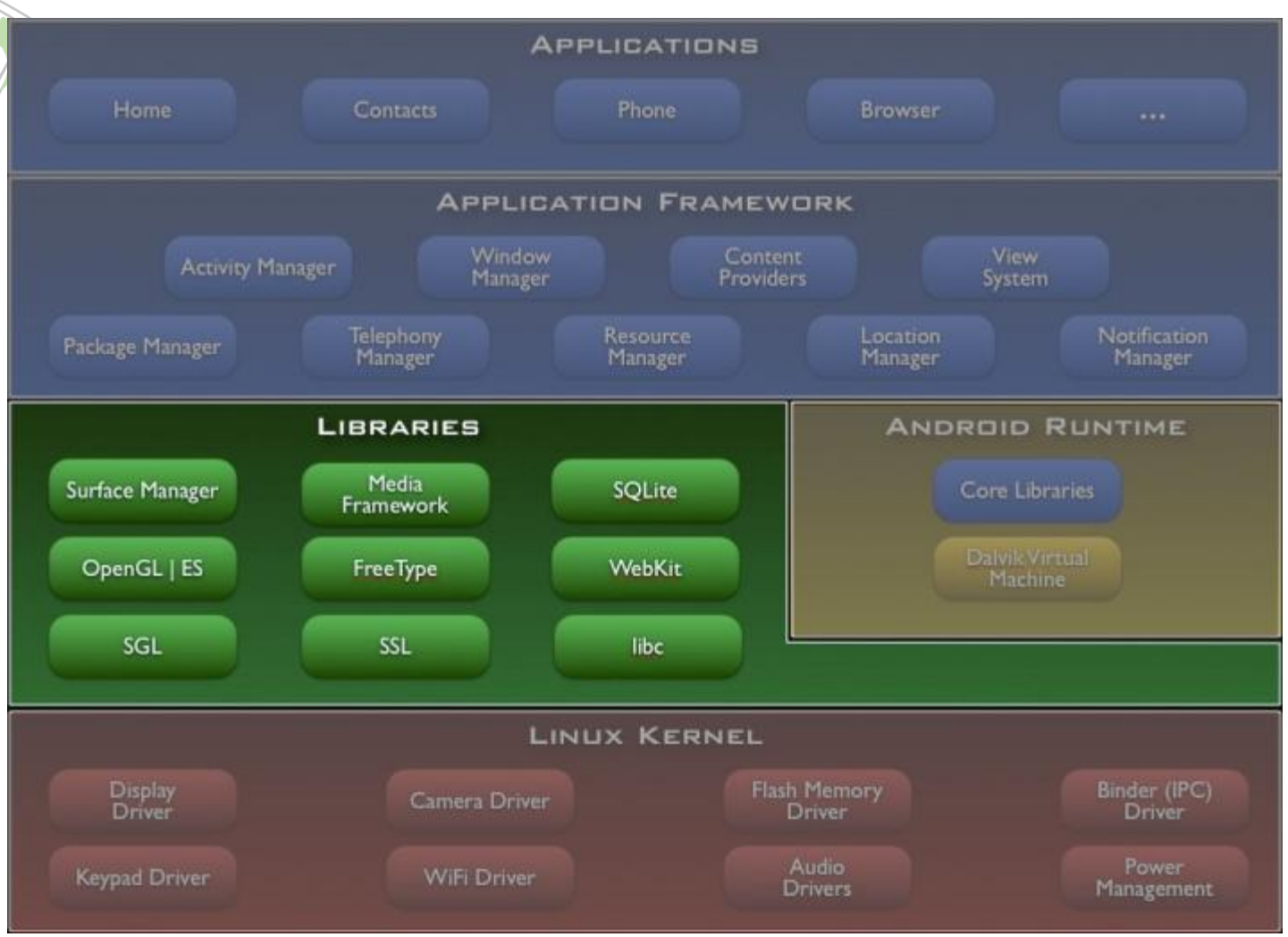
Start with Android



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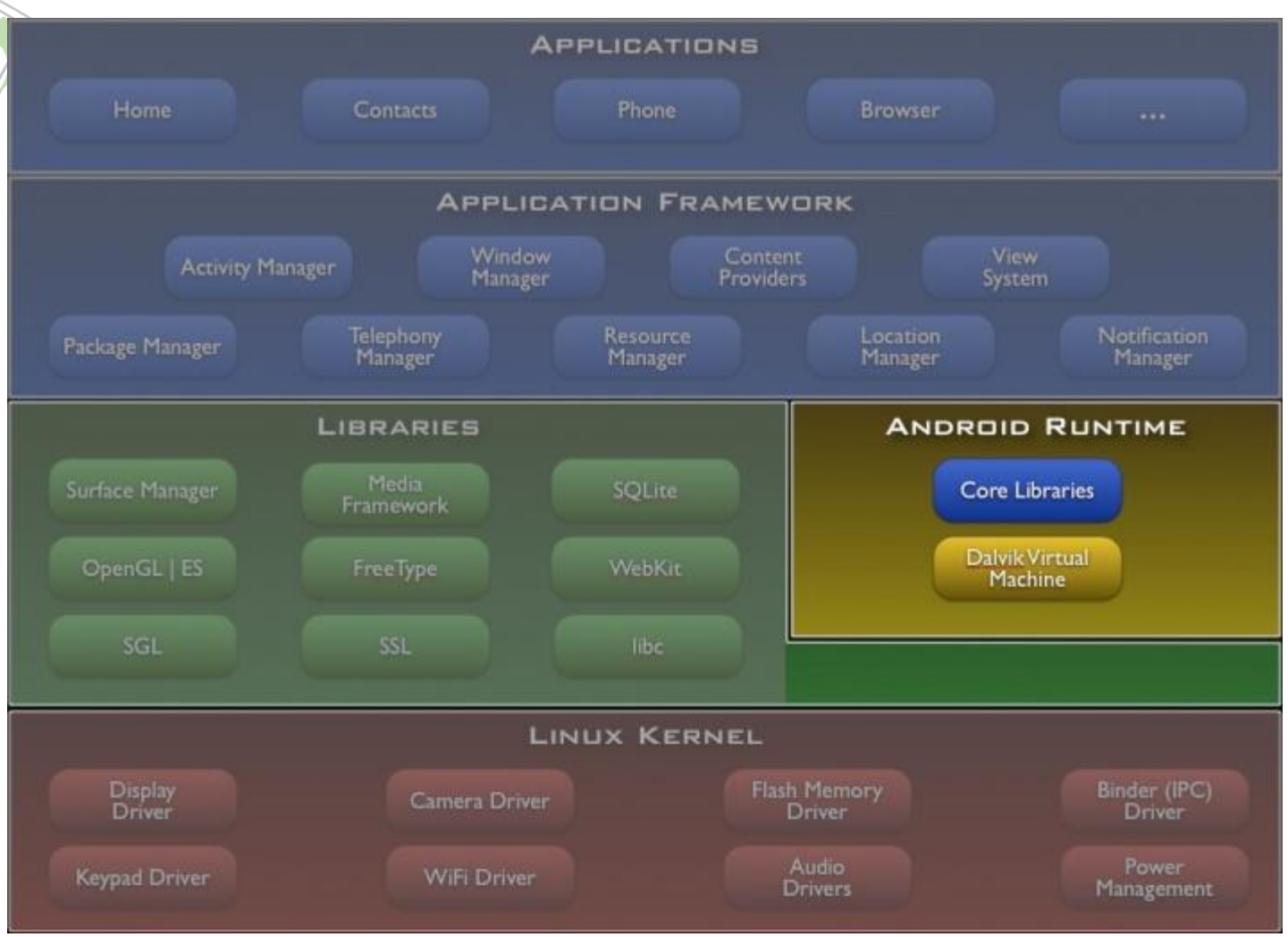
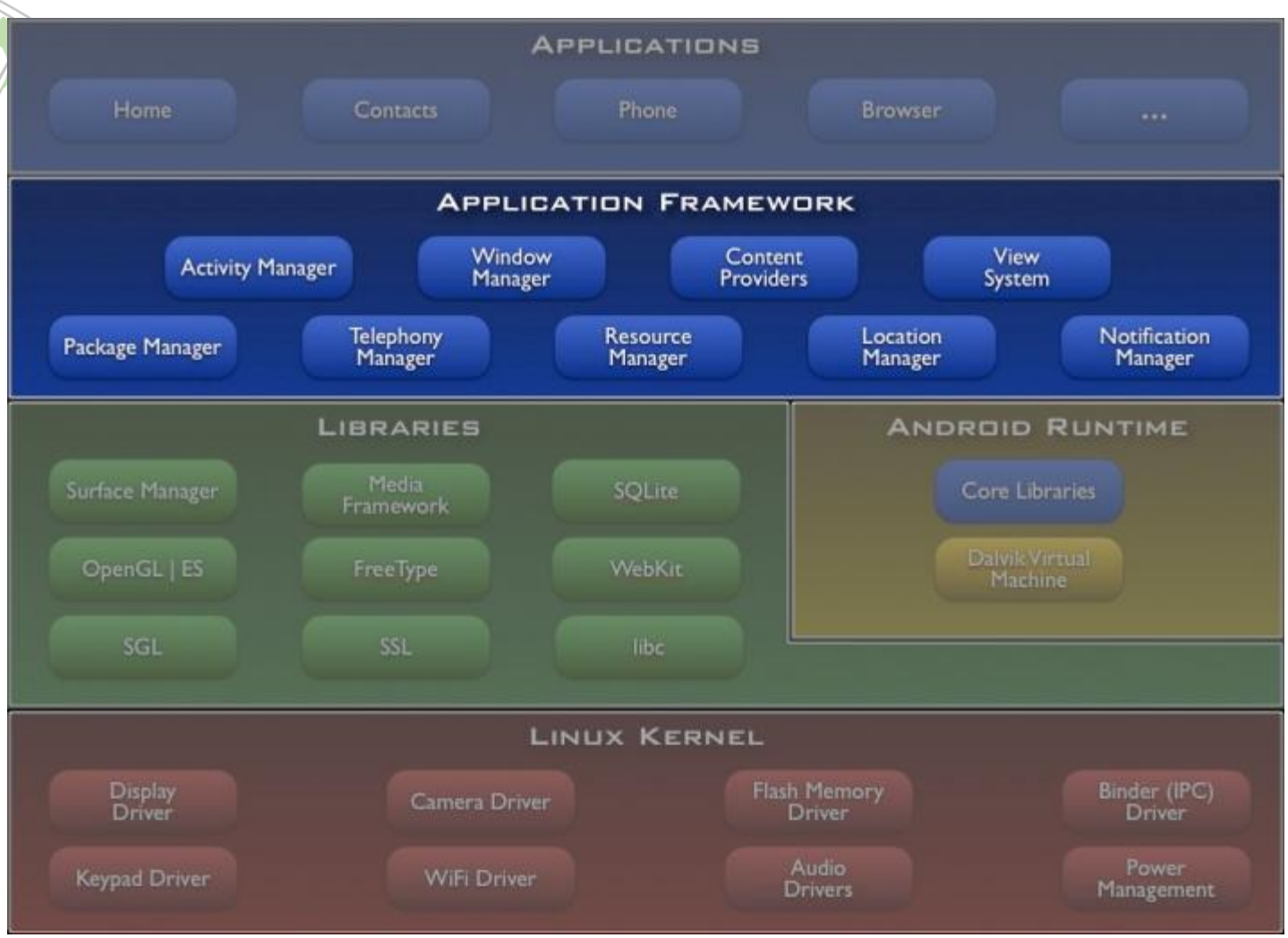
Start with Android



Start with Android



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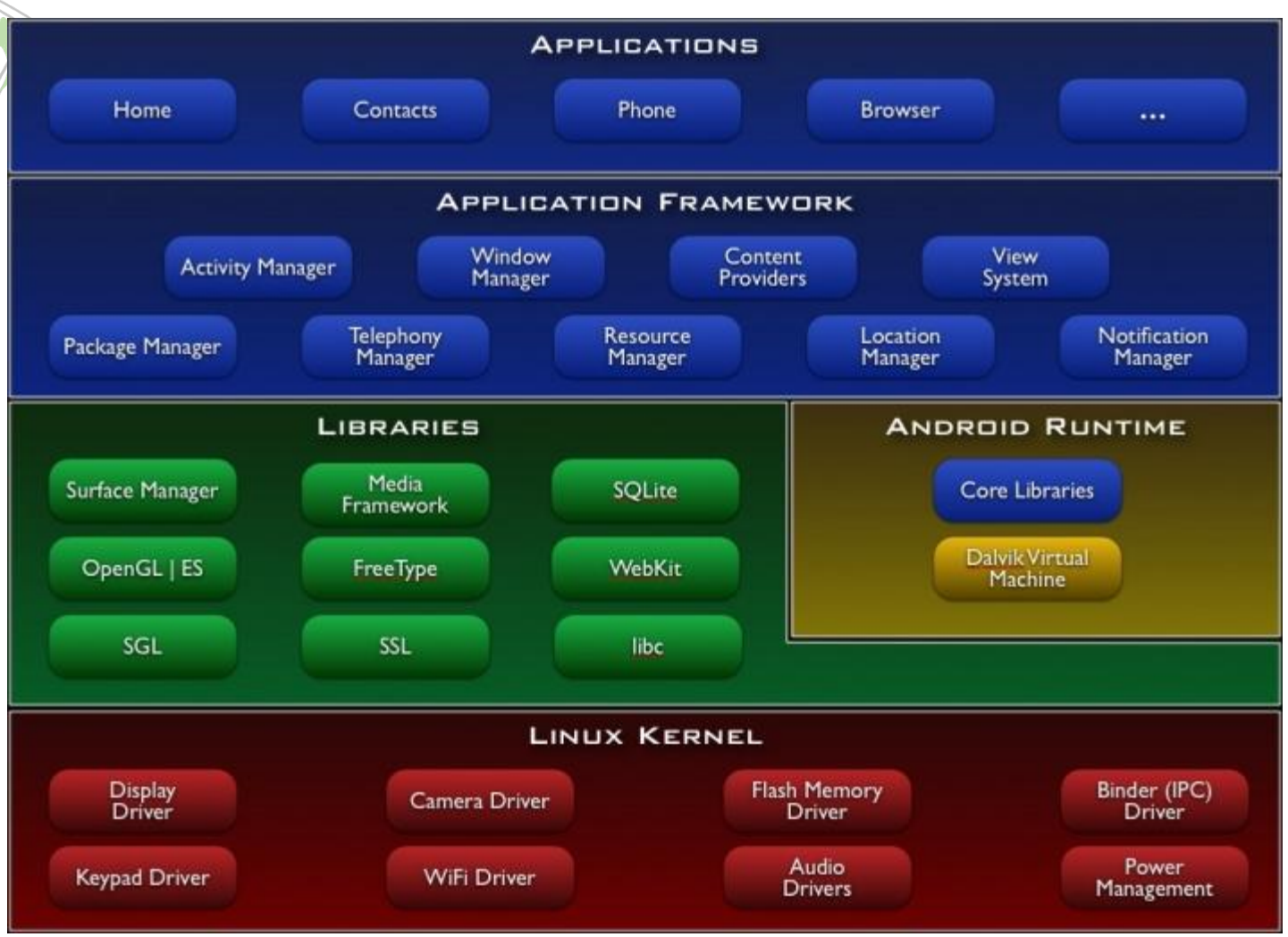
Start with Android



Start with Android

- Fully integrated development environment
  - Eclipse
  - Simulator
  - Debugger (DDMS)
  - Performance analyser (traceview, hierarchy viewer)
  - Static code analyser (lint)
  - Application deployement (Google Play)

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Start with Android

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- Huge Community
  - User Group (Paug)
  - Stackoverflow
  - Hackathon
  - Dev for fun

PAUG

Paris Android User Group

Pros and Cons

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- Android : fully integrated

Pros and Cons

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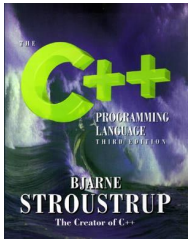
- Linux Embedded: lot of choices



Pros and Cons

- OpenSource ... Google style
  - You can customize your ROM for your needs
  - You depend on Google for the future

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Pros and Cons

- User centric
  - App is king
  - GUI
  - Touch screen
  - RS232? CAN?
  - Lot of apps ready to use

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Pros and Cons

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Q&A

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QUESTIONS ?

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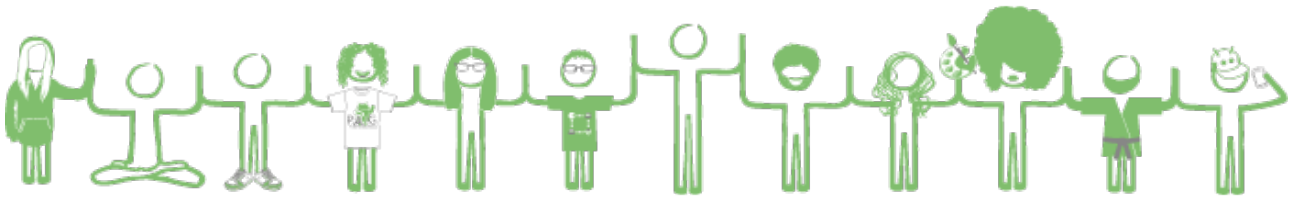

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