SFO15-501: Lead Project: Android Consolidation

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Problem Statement

- Supporting Android on each platform requires development, test, support and maintenance of whole software stack consisting of Trustzone, bootloader (fastboot), kernel, and Android HALs
- How to support 2, 10, or 96 different boards?
- No upstream for Android HALs
- Fragmented kernel driver interfaces
Goals

● Develop kernel support once across distros (Android, ChromeOS, traditional Linux)
● Mainline kernels just work
● Eliminate need for custom HALs
● Make adding devices and updating to new Android versions easier
● Create an upstream community for Android devices
Initial Engineering Areas

- HALs
  - Graphics - DRM
  - WiFi/BT
  - Vibrator - replacing timed-gpio with led-triggers
  - Lights
- Build system
DRM Graphics

- Plumbers Conf summary
- Coordinate various Android DRM efforts
  - Linaro, Android-x86, Freedreno, TI
- hwcomposer adaptation for atomic modeset
- Android sync fence support in DRM
- Consolidate DRM test suite
WiFi/BT

- Mainline drivers work OOTB
- Identify gaps in mainline WiFi
- UART slave support (part of kernel consolidation)
Build System

● Single system image across devices
  ○ Improve our own house first
  ○ Differences in devices drives consolidation development tasks
  ○ Android One style partitioning

● Make configuration more dynamic

● Better configuration tracking
  ○ kconfig for Android?
  ○ separate compiler config from device config

● Improve build times - rebuild less often and fewer components