

Android partitions and customization

Agenda

- State of the world
- Breakdown of partitions and uses

In an ideal world

- Single userspace per architecture
- Single kernel binary
 - all device-specific selections made through DT
- Kernel source all upstreamed
 - Or at least a simple patch set on top of upstream

Where we are

- Every device on its own kernel and userspace
- Vendor trees roll back upstream support for their own architectures or maintain huge diffs
- Functionality moving to proprietary userspace and/or trusted OS

Android One efforts

- Single kernel and system image for every device in one family
- Adding the /oem and /odm partitions

Kernel

- Single kernel binary
- Relying on DT
- Doing DT the right way is hard
- Convincing partners to do it is harder
- Had to allow for straps (resistors, pullups/downs) detected in kernel

The /system partition

- Originally the only partition that contained binaries and assets
- Today it should only contain generic code

The /vendor partition

- Shipped for the first time on Nexus 9
- Contains SoC specific binaries (OpenGL libraries, ISP...)

The /odm partition

- Contains all the device-specific code (sensor HAL...)
- Updateable independently
- ODMs can generate a disk image with the correct binaries themselves

The /oem partition

- Non-verified
- Contains assets and customizations
- Not updated (in the current scheme)

Goal

- Single system image binary for all targets on a single ABI
- Every partner gets the ability to customize at the level they care about