Android
A case study of an Embedded Linux Project

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http://github.com/gregkh/android-presentation
Disclaimer

Everything I say here is my opinion alone and not the opinion of my employer Novell. Heck, they don't even realize I'm here giving this talk.

Everything said here is from the viewpoint of an experienced member of the Linux kernel community, who also happens to have a lot of experience in the embedded arena as well.

If you have any questions / concerns / flames, you know where to find me.
Focus on the kernel only. Who cares about userspace?
Everything I complain about, can be fixed tomorrow with no changes to any Android userspace program.

Almost all of these changes can only be done if Google developers allow them, as they will require changes to the Android libraries due to the user/kernel interfaces involved.
Things Google did right

Linux

android.git.kernel.org

Followed the license of the kernel
Things Google did wrong

android.git.kernel.org

Ignored the community

Thought they were special

Thought they were alone
android.git.kernel.org
android.git.kernel.org

6 different full kernel trees
android.git.kernel.org

33 different kernel branches
33 different kernel branches

2.6.25 – 4 branches
2.6.27 – 3 branches
2.6.29 – 9 branches
2.6.30 – 1 branch
2.6.32 – 7 branches
2.6.33 – 6 branches
2.6.34 – 3 branches
android.git.kernel.org

1 old stale Linus tree
android.git.kernel.org

2 known stand-alone drivers
android.git.kernel.org

2 known stand-alone drivers

One has 13 different branches
2.6.34-rc2 based branch

283 files changed
47,715 lines added
363 lines removed
2.6.34-rc2 based branch

- 50% drivers
- 30% filesystem
- 15% architecture
- 5% core
Drivers - 2007

- dcc_tty – arm tty driver
- Synaptics i2c touchscreen driver
Drivers - 2008

- reset key drivers
- GPIO input drivers
- Timed GPIO driver
- ledtrig-sleep debug driver
- Kernel debugger core
- pmem driver
- Loads of MMC changes
Drivers - 2008

- Nvidia Tegra MTD NAND controller
- RTC alarm driver
- Logger
- Ram console
- Switch subsystem
- GPIO switch
- USB Gadget subsystem rewrite
Drivers - 2009

- Apanic debug flash driver
- Uid status
- TI Bluetooth rfkill driver
- Bluetooth core fixes and extensions
Drivers - 2010

- Tegra USB gadget driver
- Tegra framebuffer driver
Security

- Binder
- “secure” networking
Filesystems

- YAFFS2
- FAT Volume ID ioctl
- inotify changes
- Partition uevents
- Special /proc filetype
Networking

- PPP on L2TP Access Controller
- PPP on PPTP Network server
- sysfs files for networking controls
- Low memory killer
- wakelocks
- “early suspend”
- ashmem
- panic timeout
- cgroup/cset changes
- futex changes due to broken userspace
- sysctl for swapless systems
Networking

- PPP on L2TP Access Controller
- PPP on PPTP Network server
- sysfs files for networking controls
Ignoring the community
Staging: android: delete android drivers

These drivers are no longer being developed and the original authors seem to have abandoned them and hence, do not want them in the mainline kernel tree.

So sad :(

Cc: Brian Swetland <swetland@google.com>
Signed-off-by: Greg Kroah-Hartman <gregkh@suse.de>
You are special and unique, just like everyone else.
It's just a fork, no big deal.