



Focused Efforts around LTS

Linux Plumbers Android Microconf 2017

[Sumit Semwal](#)

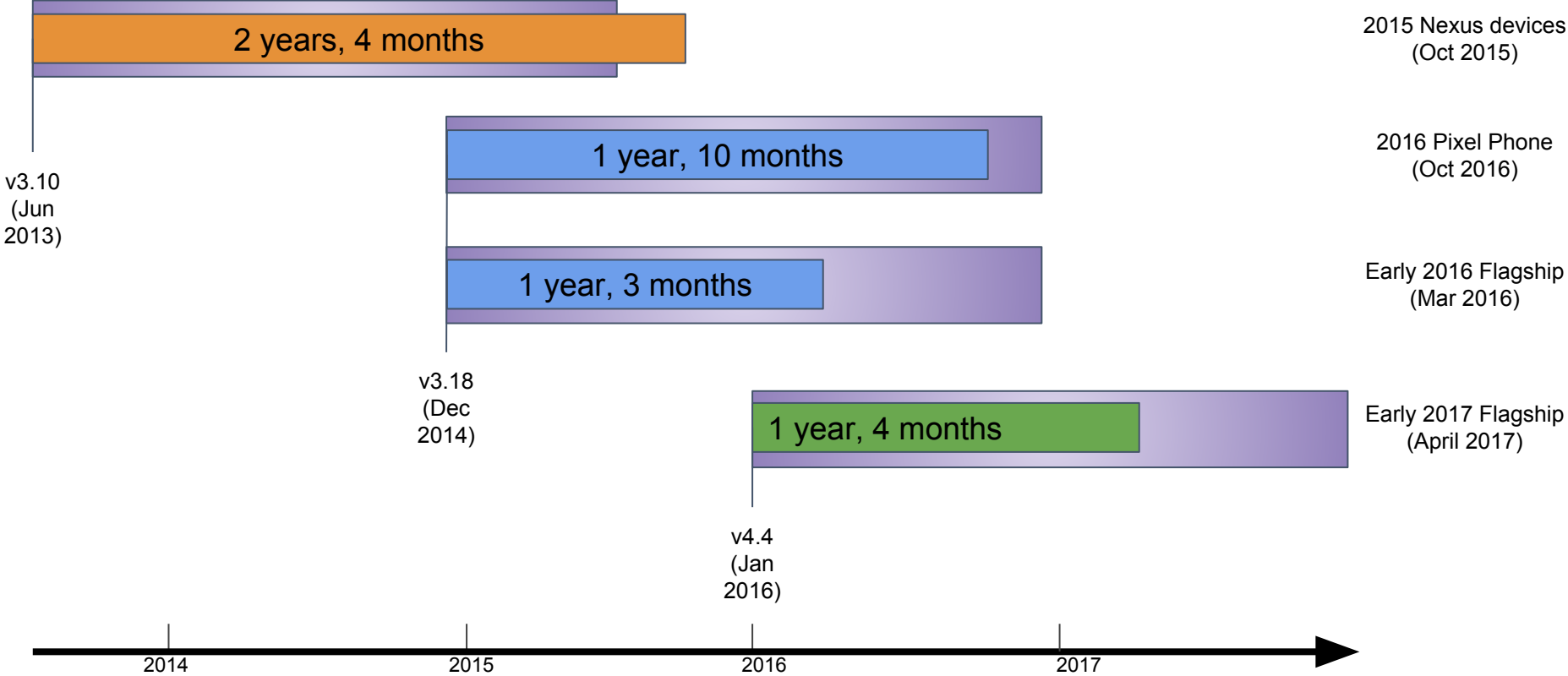
LEADING
COLLABORATION
IN THE ARM
ECOSYSTEM

Why 'renewed' interest in LTS?

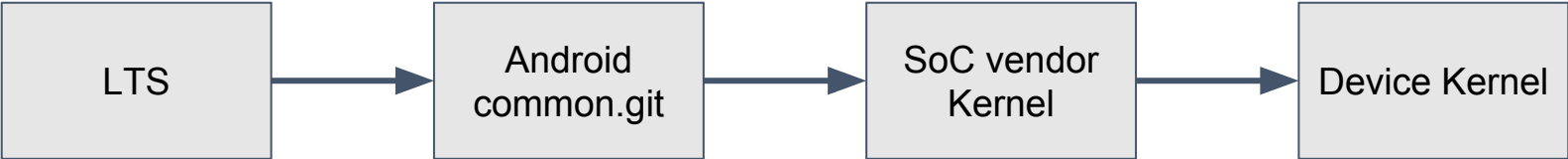
- Short Answer: AOSP Kernels.
- Earlier, AOSP kernels would start with an LTS kernel, then branch out deep, into vendor trees
 - Fixes and security updates were scattered all around, mostly staying put in vendor trees, or sometimes android-common, but not sent to -stable.
 - This also meant fixes weren't tested well outside of vendor tree scope.
- Devices would follow a 'longer than LTS' lifecycle.
 - Level of Confidence on these devices was low wrt fixes, security updates and general stability
- Need to Streamline Fixes & Testing

New Phones, Old Kernels

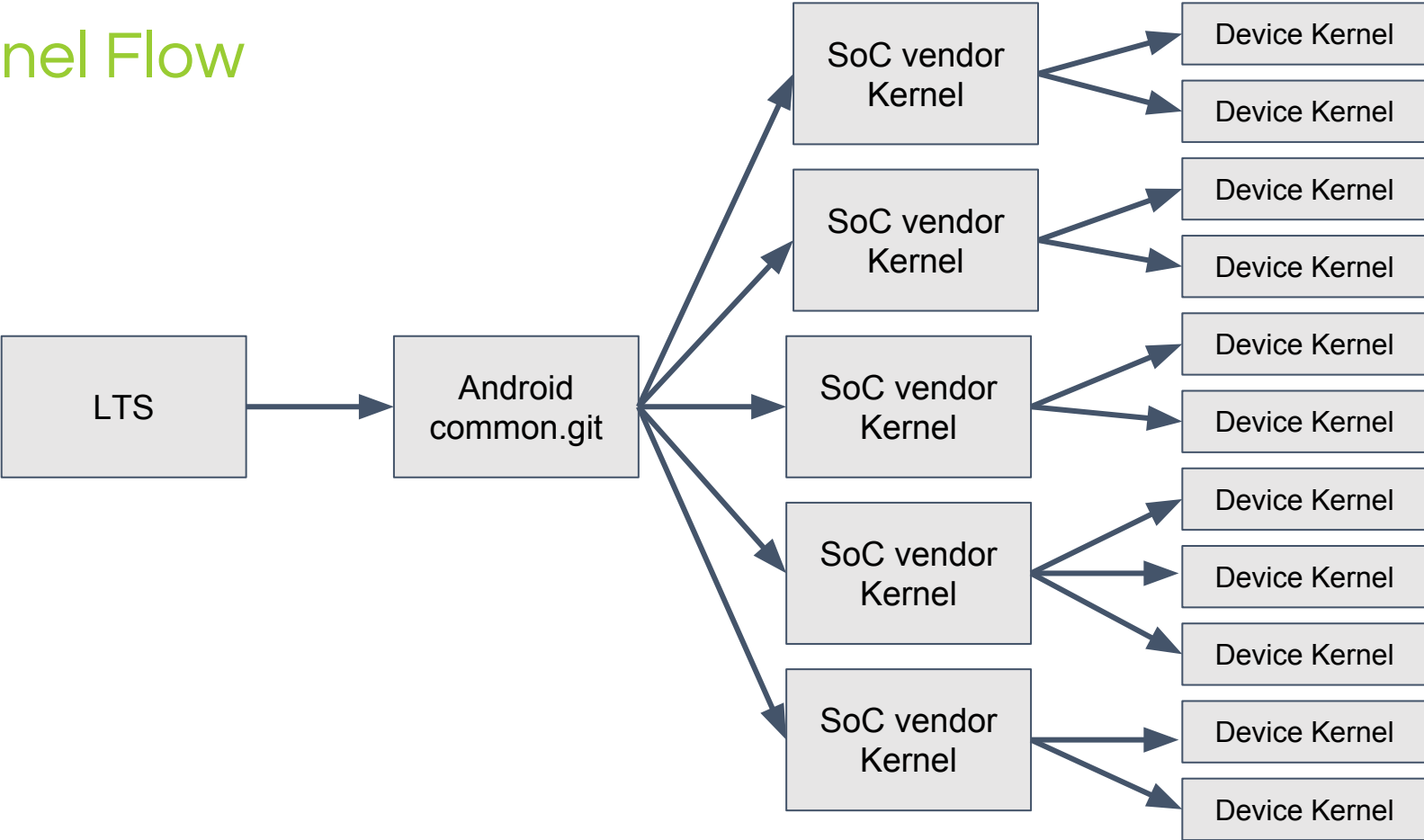
LTS 2yr lifetime



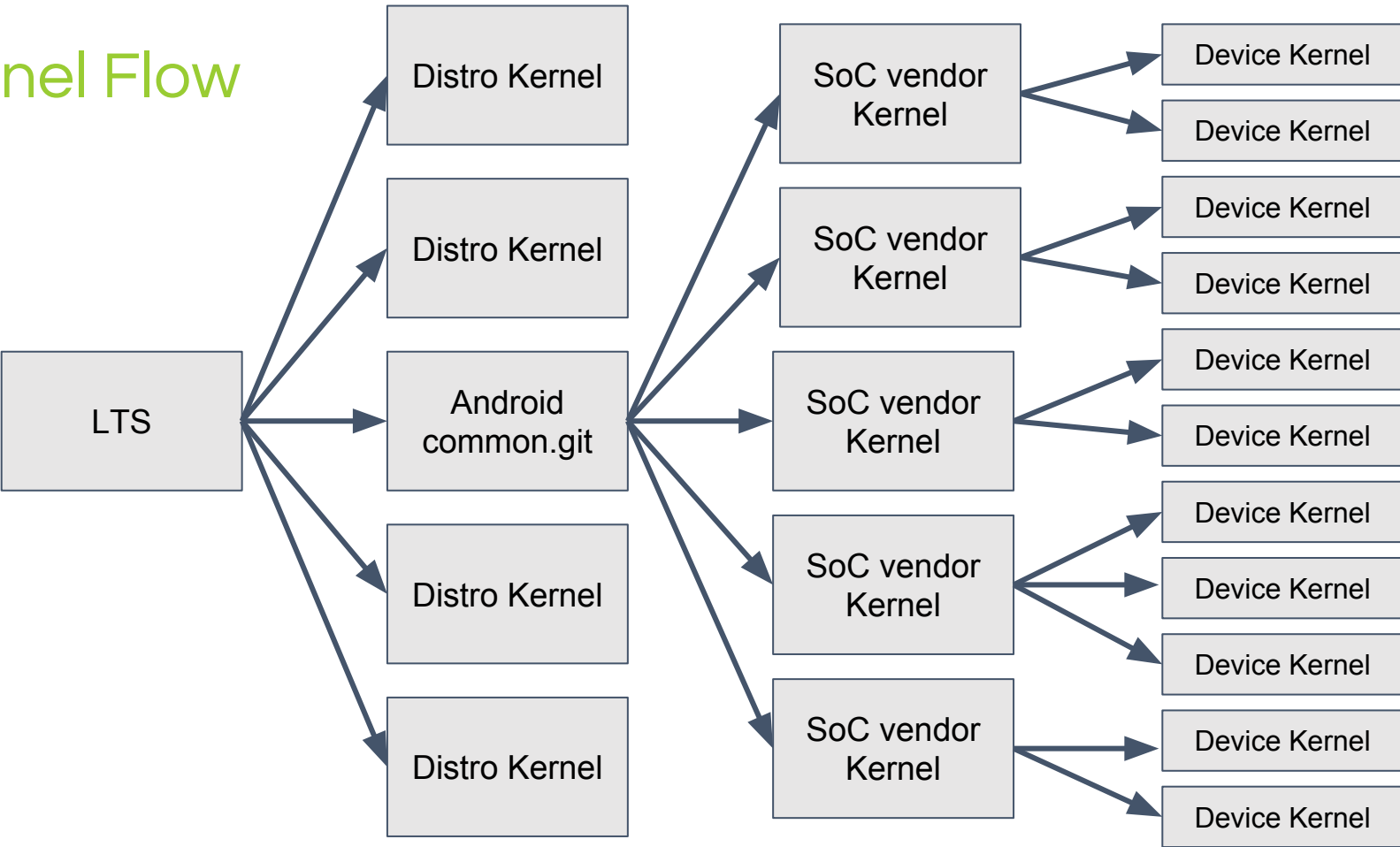
Kernel Flow



Kernel Flow



Kernel Flow



What is being done?

- More fixes into LTS
 - At Linaro, we are actively scouting distro and vendor kernels for -stable worthy patches, and proposing them - like a few other community members.
 - Since March 2017, we've scouted ~3400 patches, while having ~300 accepted into LTS kernels.
- AOSP common kernels are now continually merging corresponding LTS releases.
 - They don't accept generic fixes; pushed to propose towards -stable instead.
 - As a result, these fixes that used to stay in vendor trees, or get added to android-common, get merged into LTS

What is being done?

- Increased testing of LTS
 - Each -stable -rc release is tested for regressions, and reports sent to Greg - seemed missing for ARM devices.
 - CTS and VTS have been enhanced for increased testing as well.
 - LKFT runs a battery of tests against LTS and Android kernels
 - Amit will talk about LKFT in detail
 - As an example, LKFT runs kselftest-mainline against LTS, AOSP & mainline kernels.
- This should increase confidence for downstream SoC vendors and devices to do regular merges of common trees to get fixes, without fear of regressions.

LTS Testing and Bug Fixing

- From LKFT's runs, as of 7/Sept/17:
 - Eg We test kselftest-mainline with 4.4 / 4.9 both stable & aosp, and
 - We found 86 bugs
 - 50 got fixed - out of which
 - 12 were test case issues or updates,
 - 5 were kernel issues - timekeeping one was interesting,
 - 4 config mismatch related,
 - 6 related to Infrastructure,
 - 1 fix went into AOSP,
 - 5 were related to OE
 - In Progress / Under discussion:
 - Many of these are related to stable kernels tested with mainline kselftests: they should '**degrade gracefully**', but don't: some of the difficult ones to handle this are firmware, seccomp, bpf.

We need all the help...

- How can we source more fixes for LTS?
- What more can we do to promote 'upstreaming fixes' amongst distros and vendor companies?
- How can testing infra be improved in a way to be useful for an 'old' LTS kernel, while being relevant for mainline and next?
- Help triage and fix bugs as they are found



Thank You

For further information: sumit.semwal@linaro.org