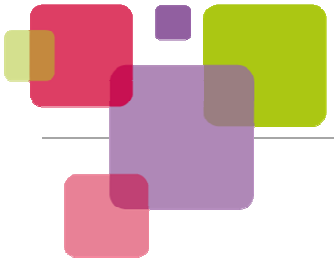


# Linaro
# Accelerating Open Source Innovation

Software Solutions for an Open Digital World

Linaro

# The presenters

- David Rusling – CTO Linaro
  Responsible for technical leadership
  Chairs the Technical Steering Committee
  ARM Fellow and open source enthusiast

- Rob Coombs – Head of Global Alliances
  Looks after Alliances and Marketing
  Linaro management team member
  Previously Director of Mobile Marketing at ARM

# Agenda

- Background to Linaro
  Why we set up Linaro and the problems we are solving
- How Linaro works and the first engineering cycle - 10.11
- Plans for the second engineering cycle – 11.05
- Demos at Techcon and how to get involved

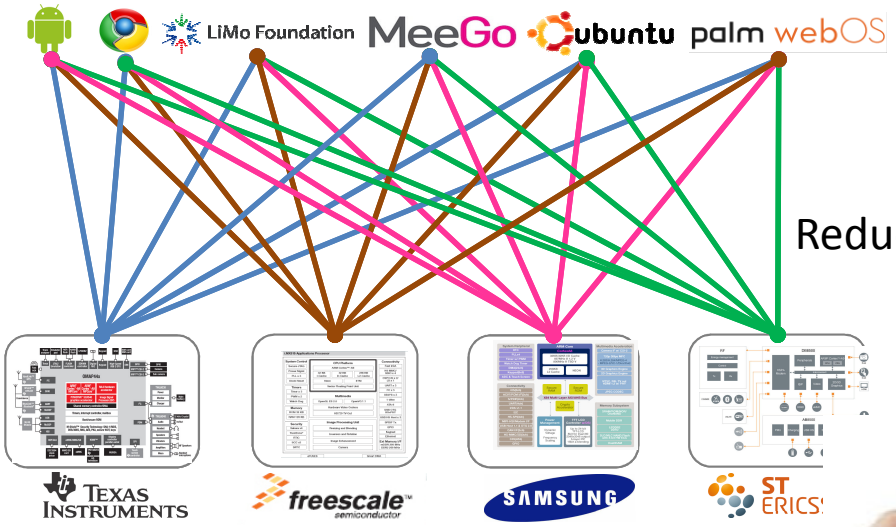
# Why Linaro?

- Our world is being transformed by Billions of Linux and open source based connected devices

- But developing open source consumer products is tough…

- Linaro was formed to tackle the 4 main problems of embedded Linux and make it easier & quicker to develop open source products

# The vision




Reducing complexity of multiple platforms/multiple SoC

**Easier**

Months quicker TTM

**Quicker**

Higher performance

**Better**

# Linaro at a Glance

- A not-for-profit collaboration sponsored by:
  - ARM, TI, IBM, STE, Samsung, Freescale
- Roughly 70 engineers, growing to 100+ by 2011
- Completely open organization
- Collaborative, open engineering in upstream projects
- Steered by the open source community, silicon providers, OEMs, ODMs & distribution owners
- Enables the diversity that is the hallmark of the ARM partnership

# The 4 problems

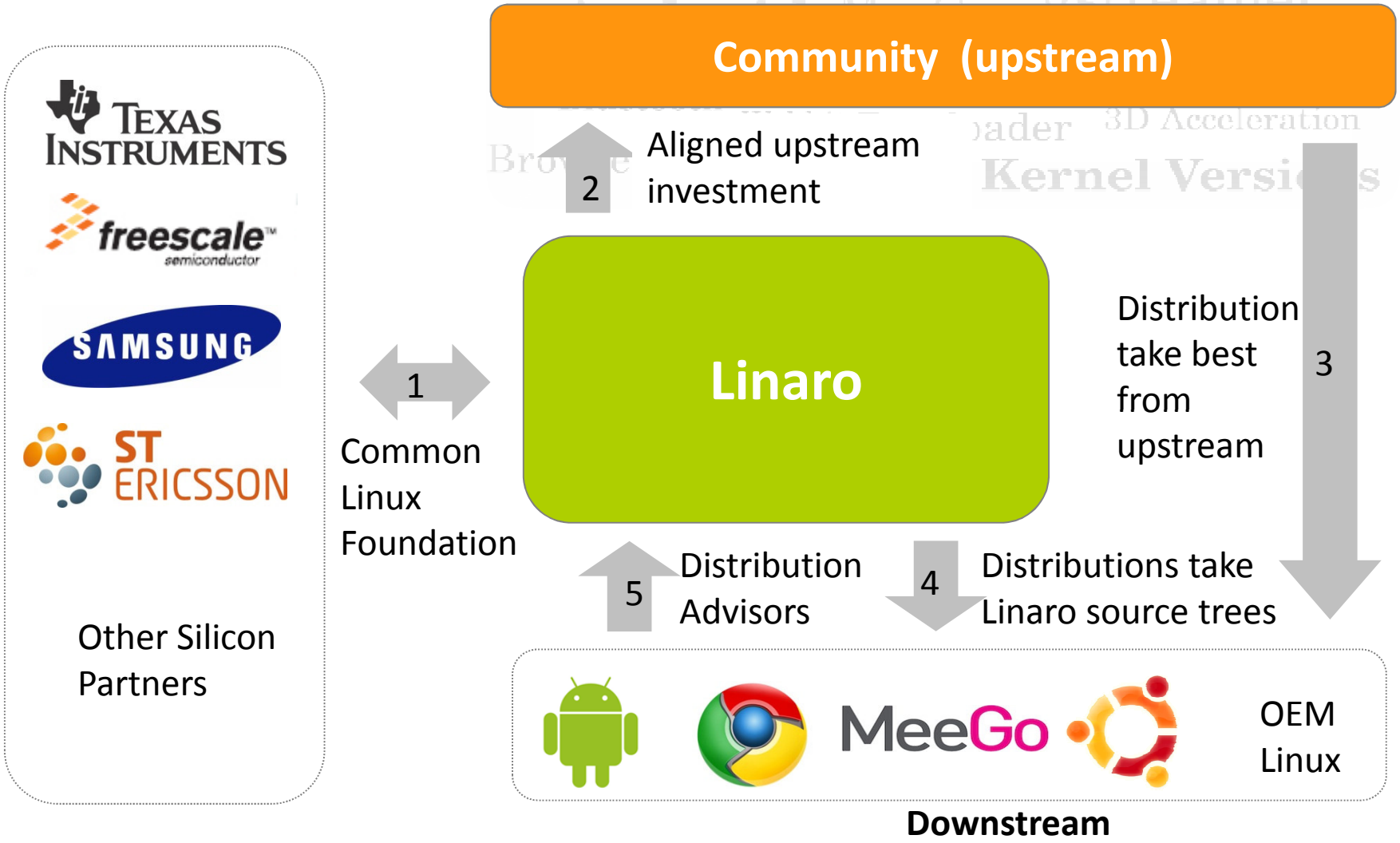
1. Under-investment in the many open source projects that make up a Linux platform

2. Distribution fragmentation – different tools, versions, different graphics and multimedia plumbing, kernel forking & versions

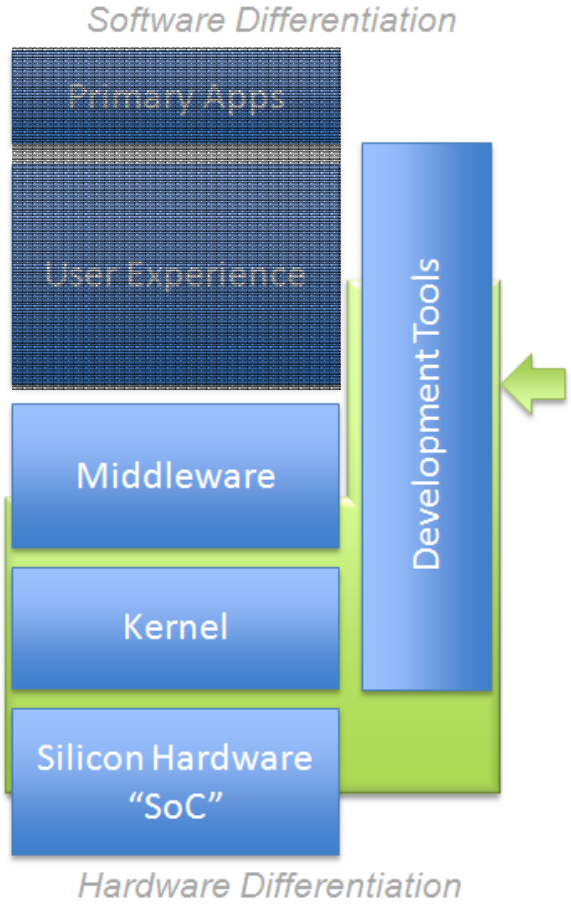
3. SoC fragmentation, different SoC vendors with different approaches e.g. kernel, power management, graphics and multimedia

4. Not enough optimization.  Features in processors not being used

# Strategy & implementation

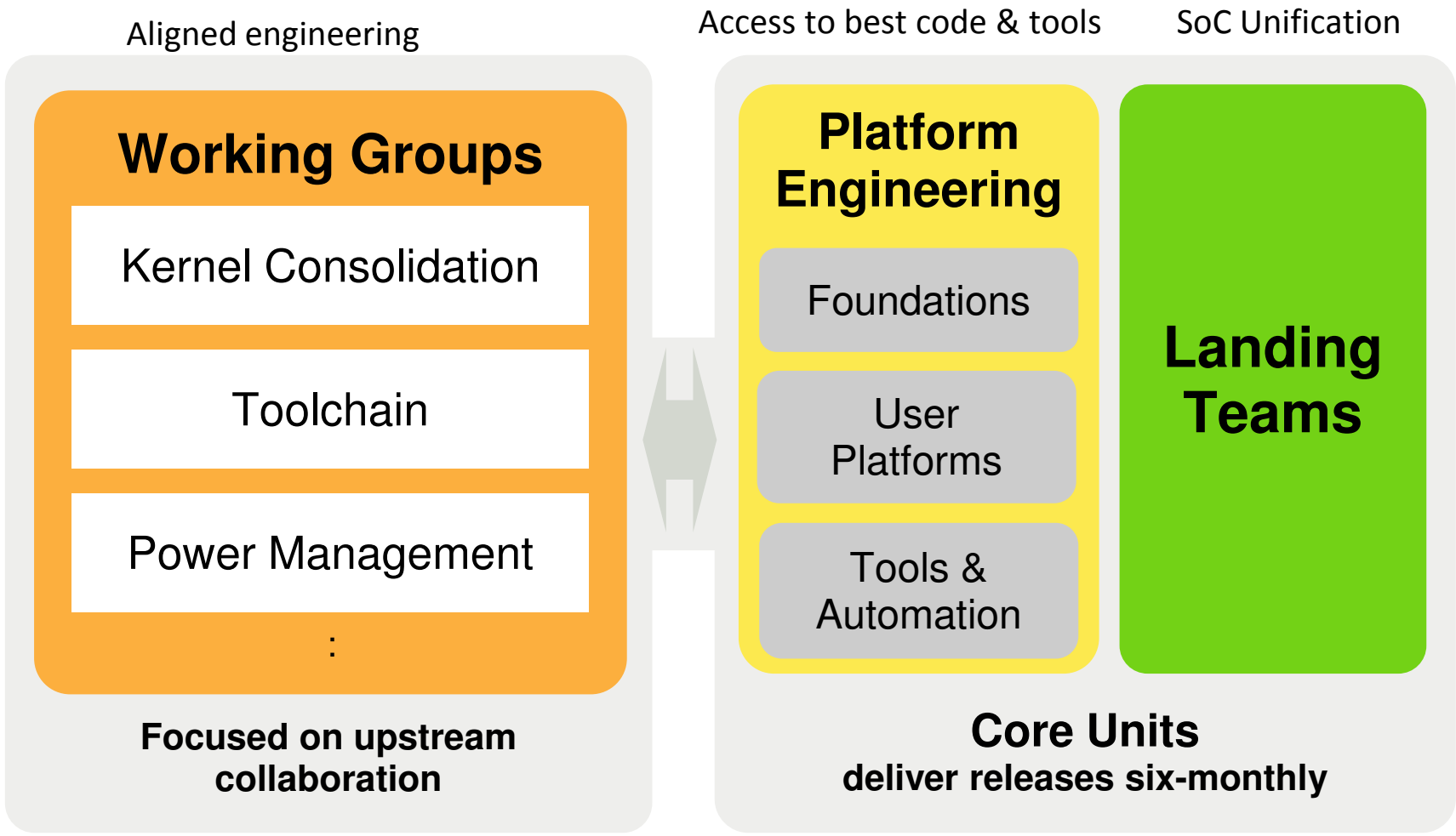


# What does Linaro do?




- A collaborative engineering organisation
- Six month engineering cycles
- Applies its engineering resources for common needs
- Delivers a common, optimized base
  - Kernel and vital middleware
  - Applied across all member ARM SoC's
- Better tools to build optimal software
- Enabled on the latest SoCs
  - Cortex A8, A9, & A15 processors
- Works with leading distributions
  - Convergence on common foundations

# Linaro Engineering Units

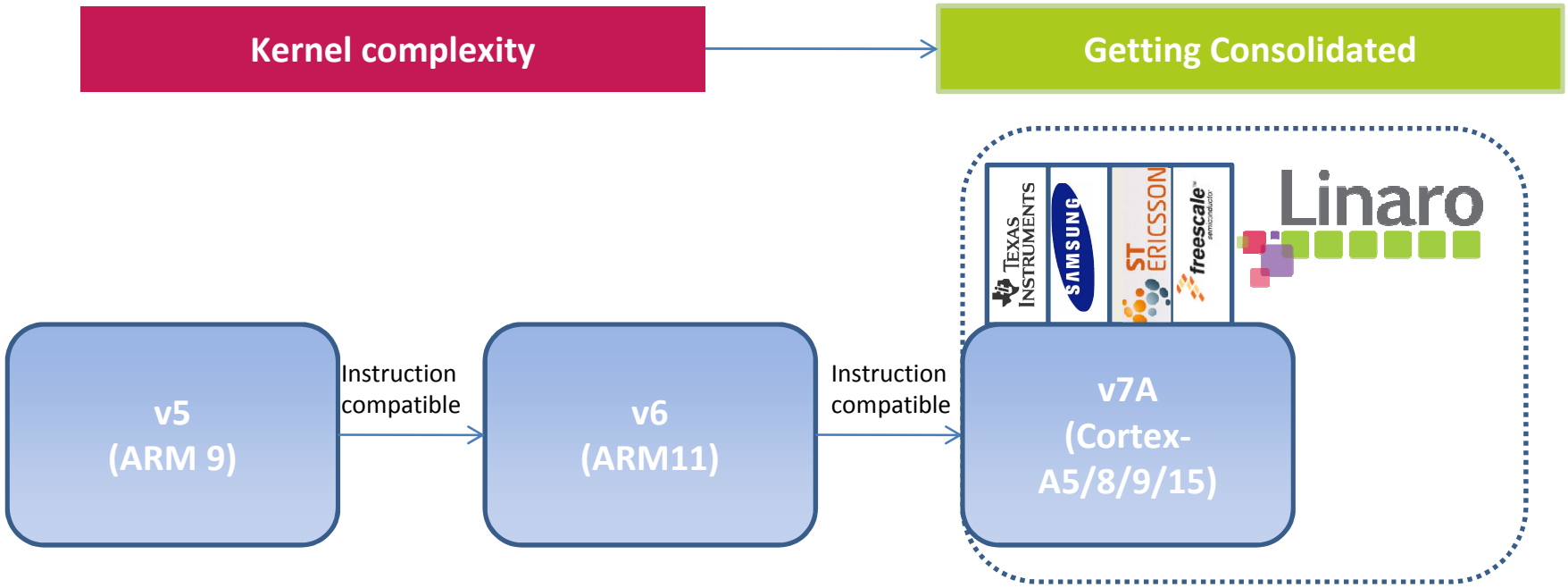



# Linaro Development Cycle


- Release cadence of 6 months
- Planning is done with Technical Steering Committee
- Engineering starts at the end of the Developer summit

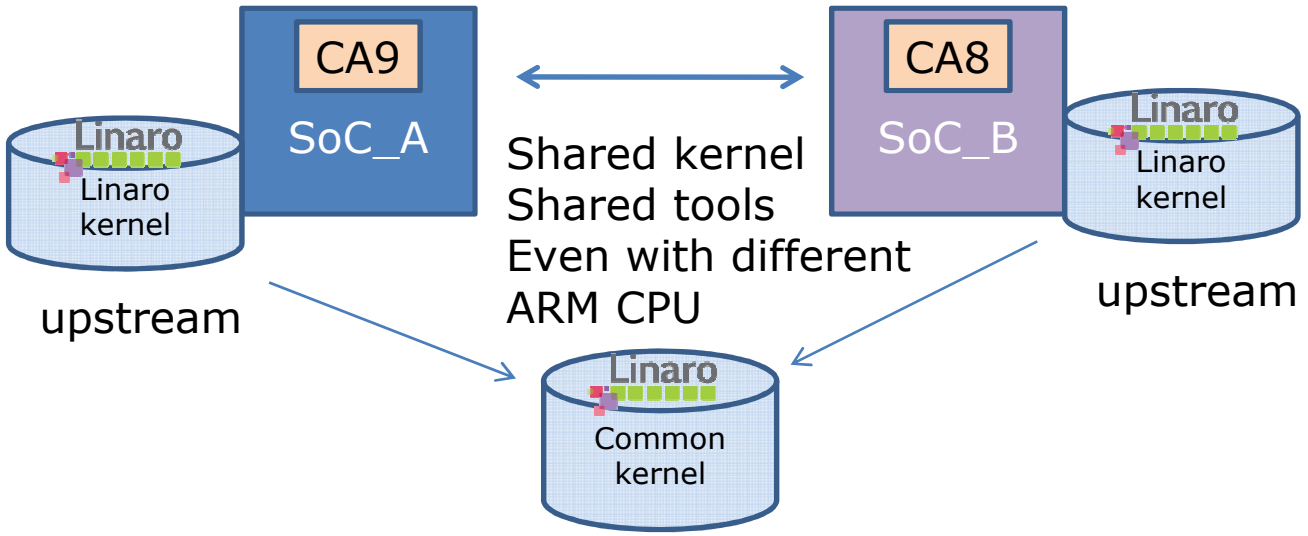
# Linaro – Simplifying SoC support

- Goal is a single source tree that integrates support for multiple modern ARM SoCs
  - Optimized for Cortex-A9 and Cortex-A8 SoCs



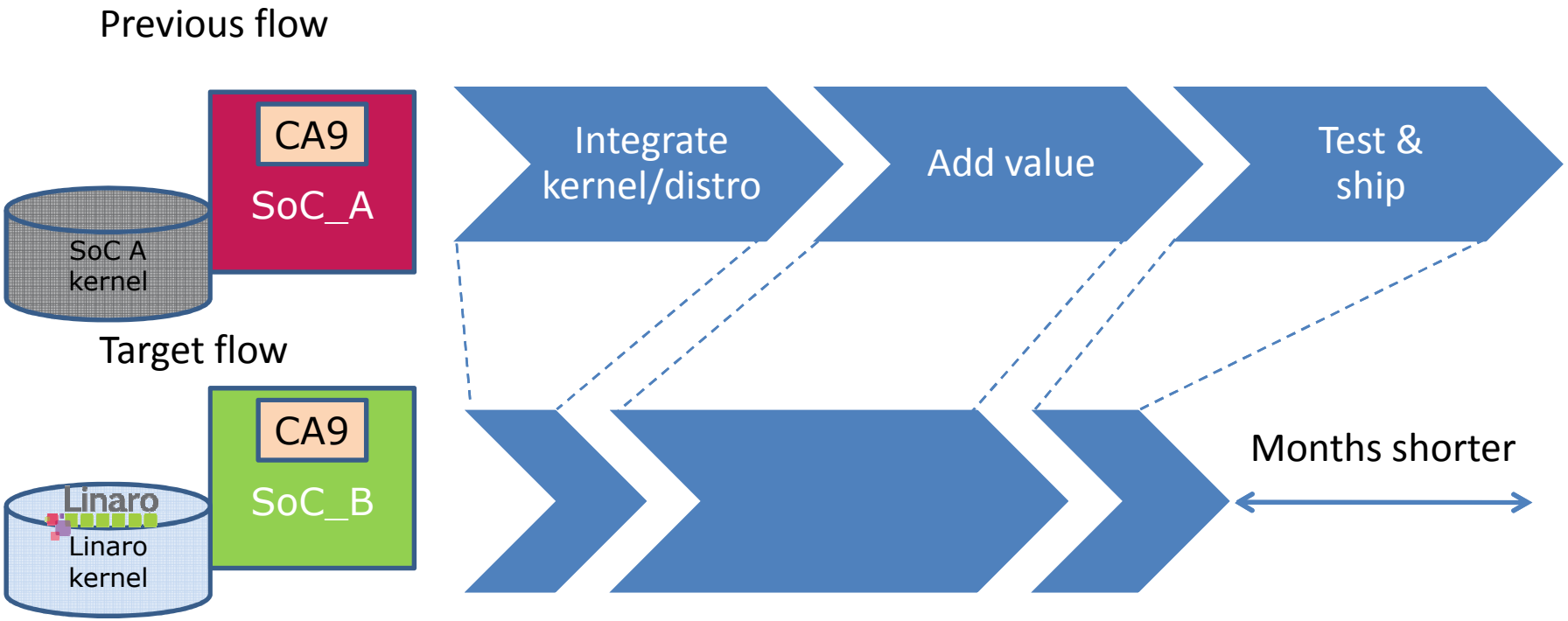
# User benefits from common kernel

- Linaro works with silicon partners to upstream SoC support
- Easier to share kernel across devices




User can have common kernel experience across different SoC vendor and different ARM core e.g. Cortex-A8 or Cortex-A9

# TTM reduced




Tools and software reuse with greater optimization enable much faster TTM. Less time getting to work, less time optimizing

# Linaro today

- Engineering now ramped
- Making open source development easier and quicker
- Created an open engineering, open source organization
- Open to Community

# 10.11 Themes (cycle 1)

- Toolchain
  - Staffed up quickly
  - Back ported state of the art Thumb-2 tuning into GCC 4.4.4 and 4.5
  - Fixed missing / broken profiling and debug features
- Kernel
  - Mostly consolidation work (kernel, uboot)
  - See Flattened Device Tree (FDT) as important
- Power Management
  - Consolidation work, initially

# Linaro 11.05 – the next 6 months

- More Working Groups – Tools, kernel consolidation +
  - Graphics, multimedia and power management
- More work on improving Linux SoC support
  - Simplifying, consolidating, optimizing
- Work with more software distributions
  - Establish Advisors to Technical Steering Committee
  - Ubuntu, Android, Other test heads
- Building momentum & delivering great engineering

# Distributions

- More distributions will take the toolchain
  - Linaro acts as an upstream open source project
- Some are considering the consolidated kernel tree
  - Although, option is available to take from upstream (depends on kernel features needed)
- Are helping to direct upstream graphics and multimedia work

# Linaro demonstrates at Techcon

- Members showing latest Cortex-A9 SoCs running different distributions that have either been built with tools or software enhanced by Linaro
  - ST-Ericsson U8500 running MeeGo
  - TI OMAP4 running Ubuntu 10.10
  - Samsung Orion running Linaro 10.11




# Get involved!

- Linaro is an open engineering organization:
- Download tools and software from our website
- Investigate our engineering & plans on the Wiki
- Explore the Community resources on the web and discuss with the Community manager
- Get a Launchpad ID and join the Working Groups
- Come along to Linaro Developer Summit (April & Oct)
- Align with our engineering and get the best Linux on ARM

# QUESTIONS?

If you want to download…
www.linaro.org

If you want to get involved…
www.linaro.org/community


If you want to see the engineering…
https://wiki.linaro.org


Linaro