Linaro™ Overview

Software Solutions for an Open Digital World

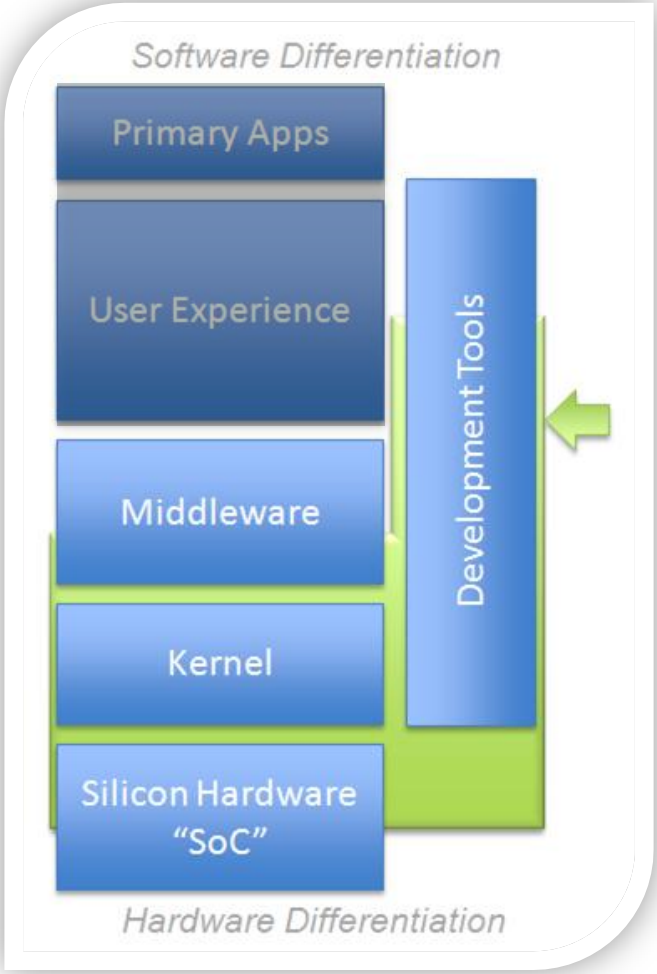
Linaro

About Linaro

- Founded in June 2010. Mission:
  - *"to make it easier for ARM partners to deploy the latest, optimized technology into Linux based products"*

- Not-for-profit software engineering company
  - 80 Engineers as of end 2010

What does Linaro do?

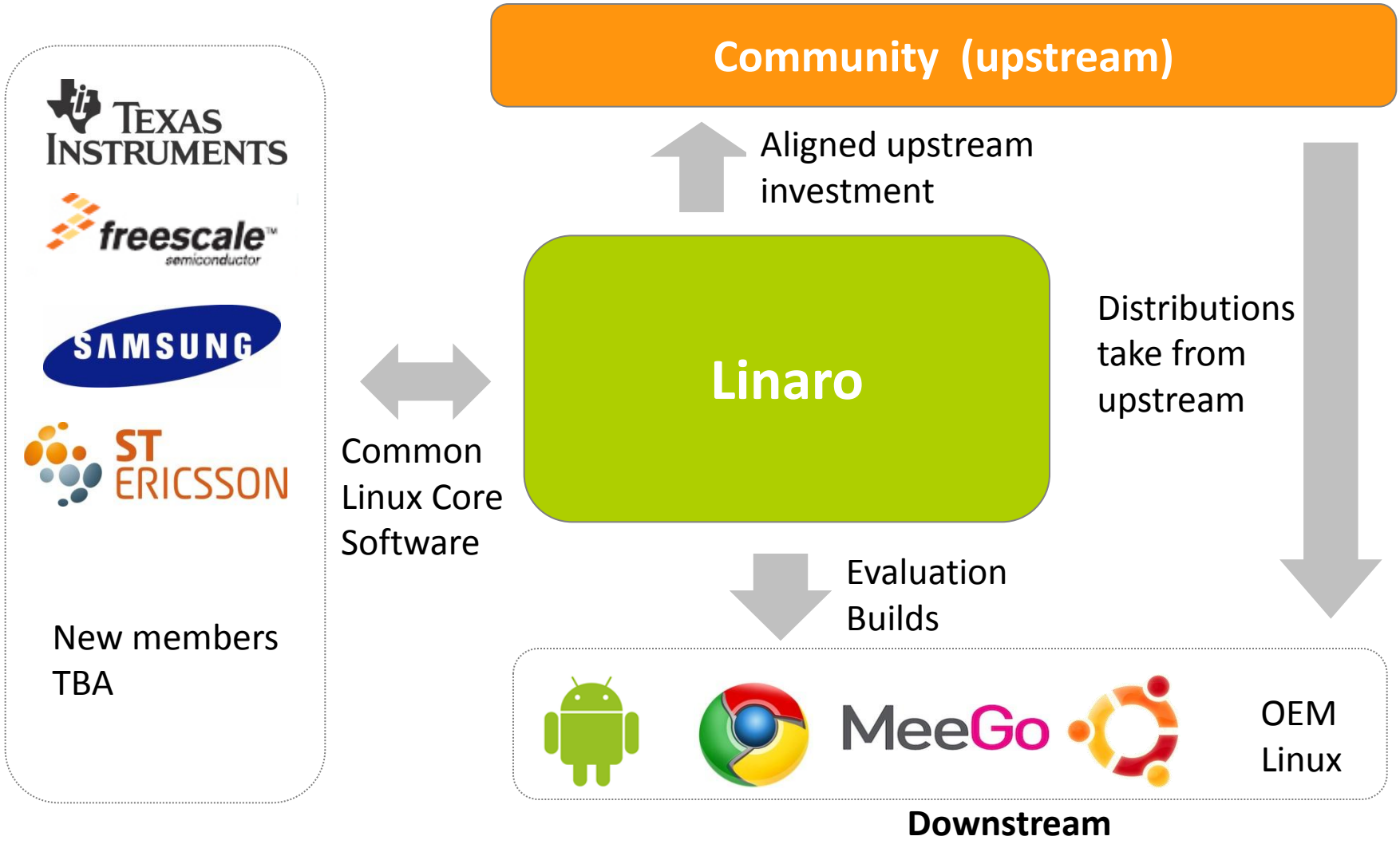


- Delivers a optimized code base
  - Kernel and vital middleware
  - Applied across all member SoCs
- Tools
  - Best compiler, debugger, profiler
- Enabled on the latest SoCs
  - Cortex A8, A9, & A15 processors
- Delivered upstream
  - Evaluation builds for key distributions – Android, Chrome, MeeGo, Ubuntu
  - Test & Validation framework for member SoCs

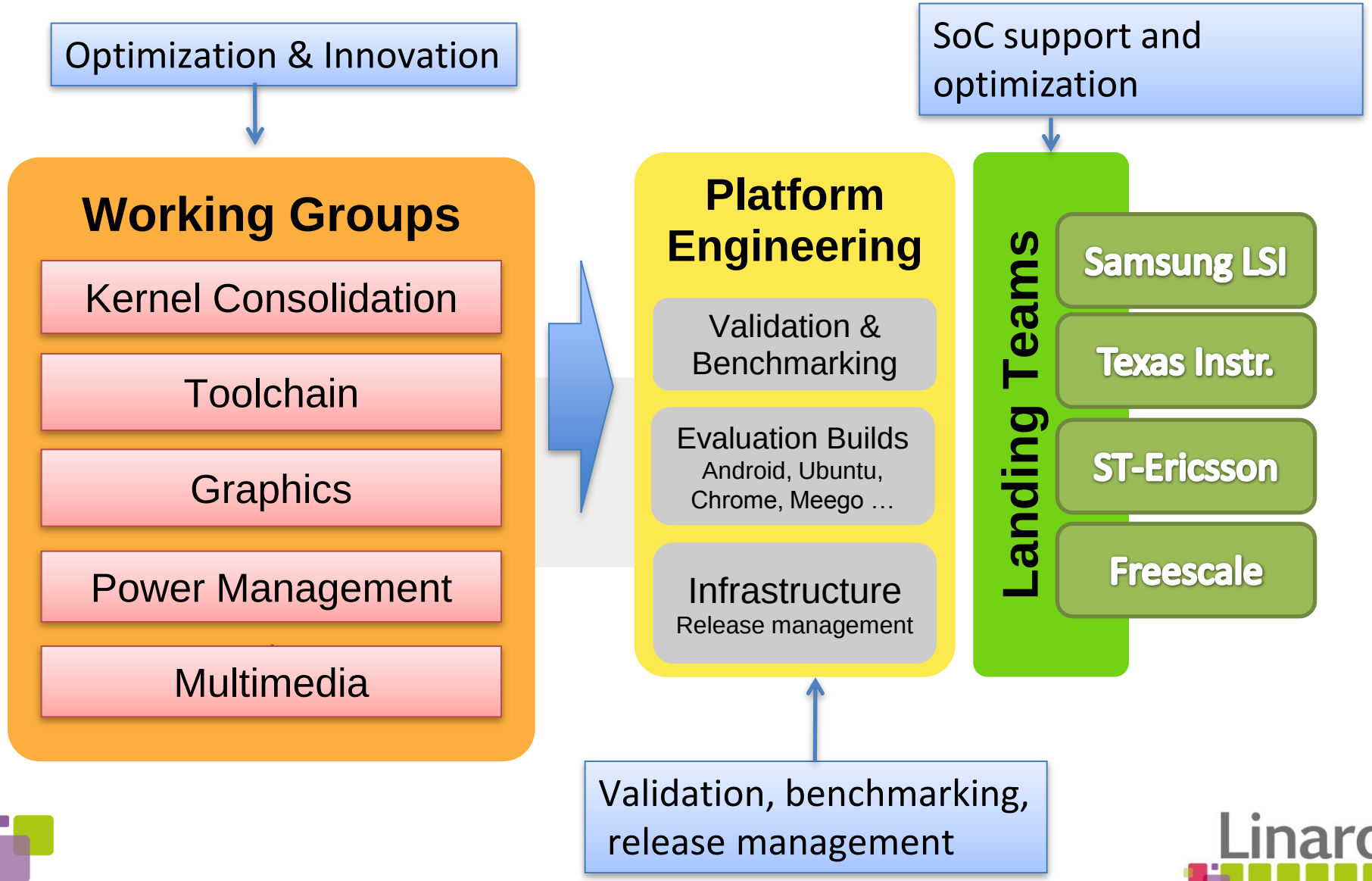
MeeGo OEM Linux

Linaro

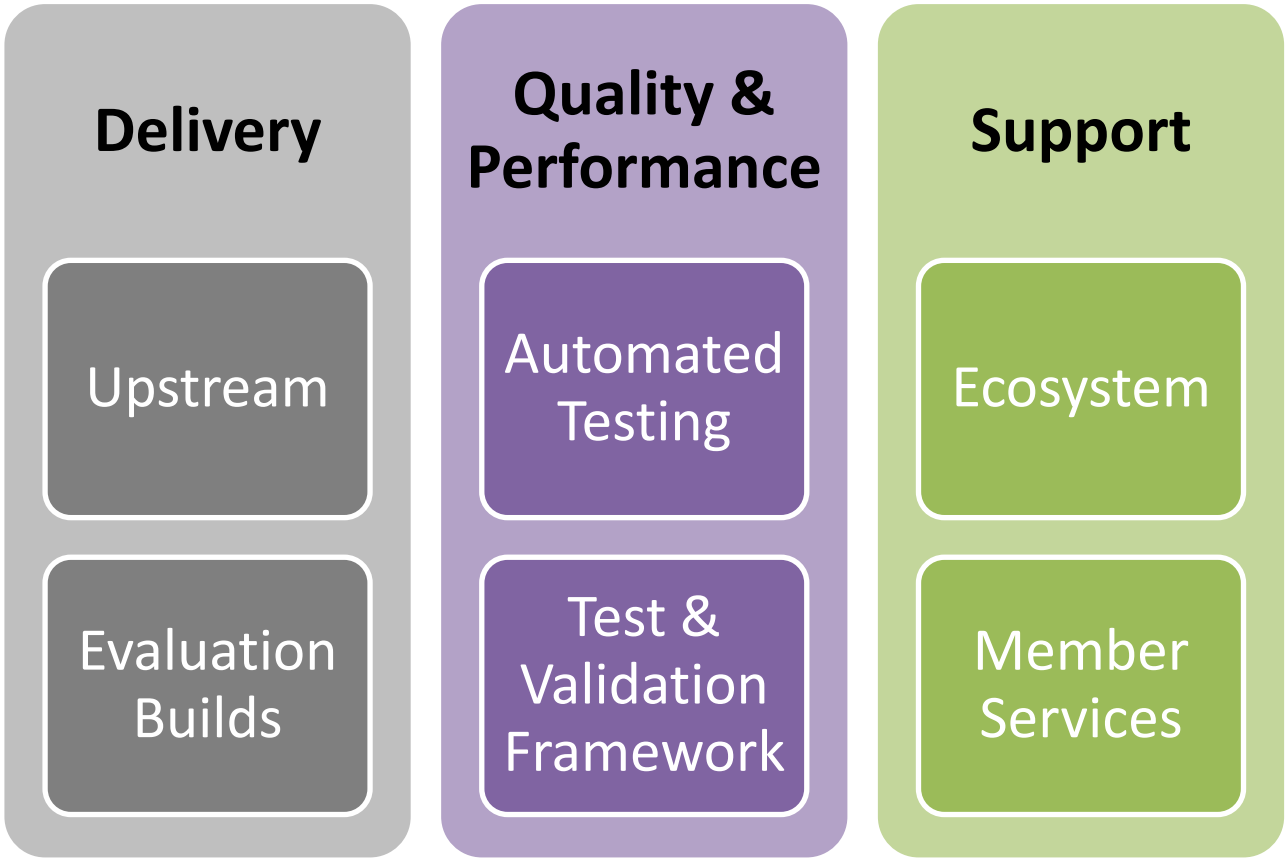
Where does Linaro fit?



Engineering units



Linaro 2011


Delivery
Upstream
Evaluation Builds
Quality & Performance
Automated Testing
Test & Validation Framework
Support
Ecosystem
Member Services

Delivery

The Problem

Integration of member SoCs, BSPs, toolchain, patches and a particular distribution takes too long and delays time to market

- Our proposed solution
  - Start delivery of Linaro technology into key distributions
  - Our goal is to build formal relationships with distribution owners including Google and work to integrate Linaro technology and SoC member support into their releases
  - Short term we need to demonstrate our value through the creation of “Evaluation builds”

Evaluation Builds

- Builds of key distributions incorporating Linaro's technology

- Initial Evaluation builds (11.05)
  - Android 2.3 Gingerbread/Honeycomb
  - Ubuntu 11.04
  - Basic ARM Linux for creating custom distribution
  - Chrome (tbd)

Benefits of Evaluation Builds

- Demonstrate the output of the working groups
- Real-life product-quality distributions for Linaro performance and regression testing
- Closer to understanding and delivering tangible deliverables that shorten the TTM
- Serve as basis for OEM/ODM commercialization
- Validate members silicon and reference designs
- Attract distribution owners to Linaro
- Attract a wider community audience

Quality & Performance

- Open source code has limited testing as it is created
- Linaro needs to quantitatively measure its performance & quality over time
  - Benchmarks
  - Power consumption under system loads
  - System stability
- Linaro engineering needs improved tools
  - Smoke testing
  - Regression testing
  - Automated testing with real distributions

Linaro Test & Validation

- We have started to develop our test & validation farm to benefit members & our own engineering
- Populated by member hardware
- Goals
  - Linaro 11.05
    - Running automated daily builds and smoke tests
    - Running daily benchmarks
    - At least 2 member boards
  - Linaro 11.11 and beyond
    - Automated performance tests on release and daily builds
    - Automated stability tests
    - Hardware from all members
    - Web dashboard available

Linaro 2011

- Toolchain, Kernel, Graphics, Multimedia and Power Management working groups deliver upstream
- Builds of Linaro-enhanced key Linux distributions on member SoCs
  - Android
  - Ubuntu
  - Also working with Chrome OS & MeeGo

- Building a test and validation framework for member SoC hardware

Roadmap

- Work with distributions to become the enablement channel for member SoCs
- Work with ARM to deliver open source support for Cortex A15
- Continue to work on ARM generic SoC optimization including toolchain support, NEON and SMP issues
- Support new market segments
  - IVI, STB, Server

How Linaro delivers value

- Linaro provides a common platform for member SoCs and Linux distributions
  - Enables SiP, Distribution, OEM, ODM to focus on value add rather than common core code
- Multiplier effect of multiple member resources working on common code base
- Access to test & validation framework
- Support and services
- **Faster time to market for end products**

Other Benefits

- SoC Vendors
  - Linaro makes Linux BSPs easier to create and support
  - Ability to accelerate TTM for new products through working inside Linaro before SoC release
- Distributions
  - Linaro enables rapid support for multiple SoCs for new distribution versions
- ODM
  - Linaro enhances service offering to customers, enabling ODM to offer multiple distributions and faster TTM
- Carriers & Segment Leaders
  - Linaro enables a standardized ARM Linux core for segment specific distributions (mobile, IVI, STB, embedded etc.)

Summary

- Linaro is a not for profit software engineering company owned by ARM, IBM and SoC vendors
  - Delivers core Linux technology for ARM SoCs
  - Faster product TTM through better integration of ARM with upstream & distributions
  - Members benefit from multiplier effect of every members investment in Linaro

Linaro

www.linaro.org