



Linaro™ Overview

Software Solutions for an Open Digital World



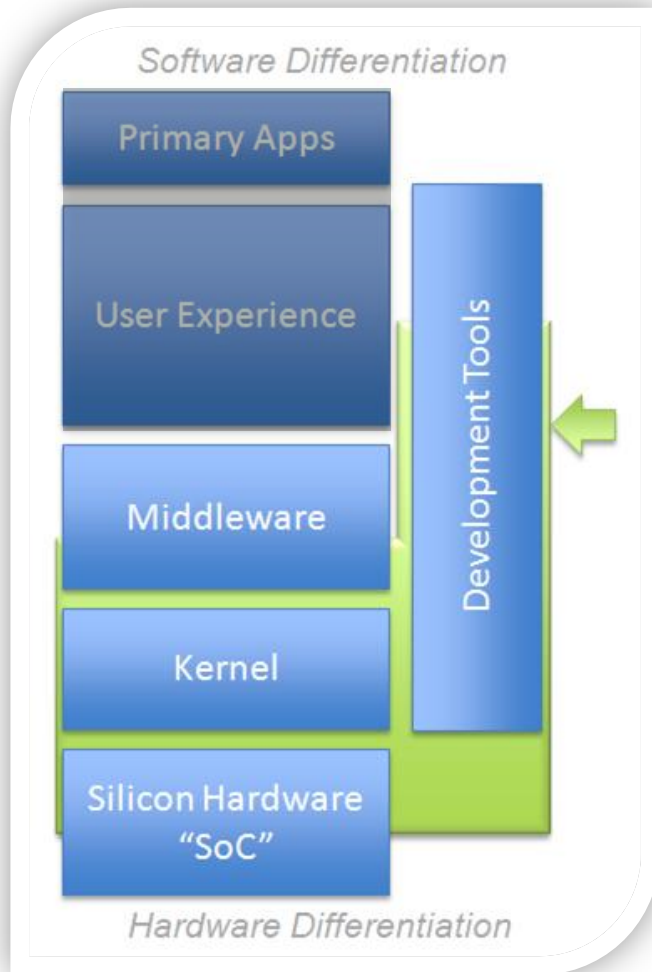
About Linaro

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

The ARM logo consists of the letters "ARM" in a bold, blue, sans-serif font.The Freescale Semiconductor logo features a stylized orange and yellow graphic to the left of the word "freescale" in a bold, lowercase, sans-serif font, with "semiconductor" in a smaller font below it.The IBM logo is the classic eight horizontal blue stripes of varying lengths, with the letters "IBM" in a blue, sans-serif font to the right.The Samsung logo is a blue oval with the word "SAMSUNG" in white, uppercase, sans-serif font.The ST Ericsson logo features a stylized orange and blue graphic to the left of the letters "ST" in a bold, orange, sans-serif font, with "ERICSSON" in a smaller, orange, sans-serif font below it.The Texas Instruments logo features a stylized orange and blue graphic to the left of the words "TEXAS" and "INSTRUMENTS" in a bold, sans-serif font.

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

What does Linaro do?



- Delivers an 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

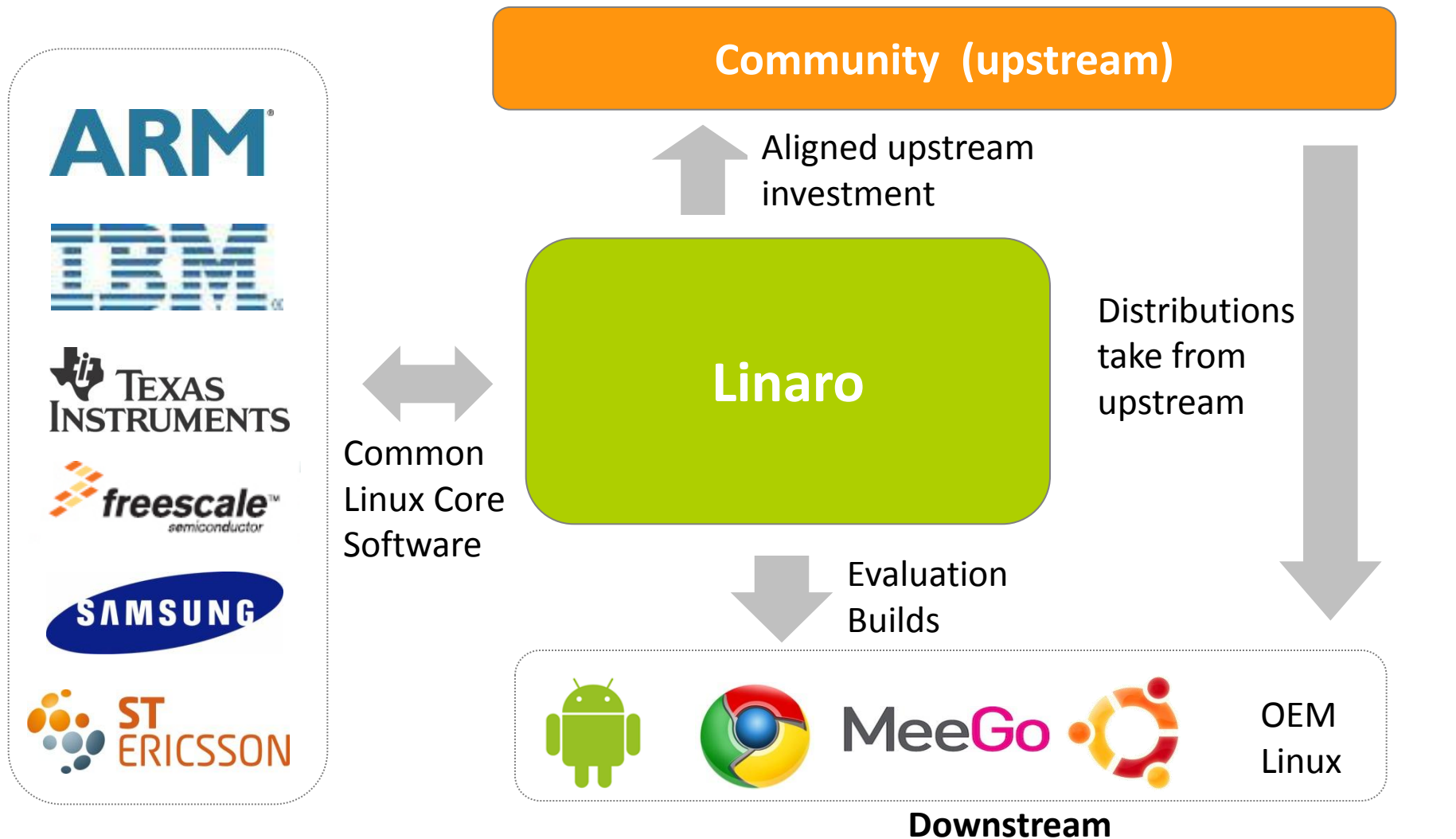


MeeGo

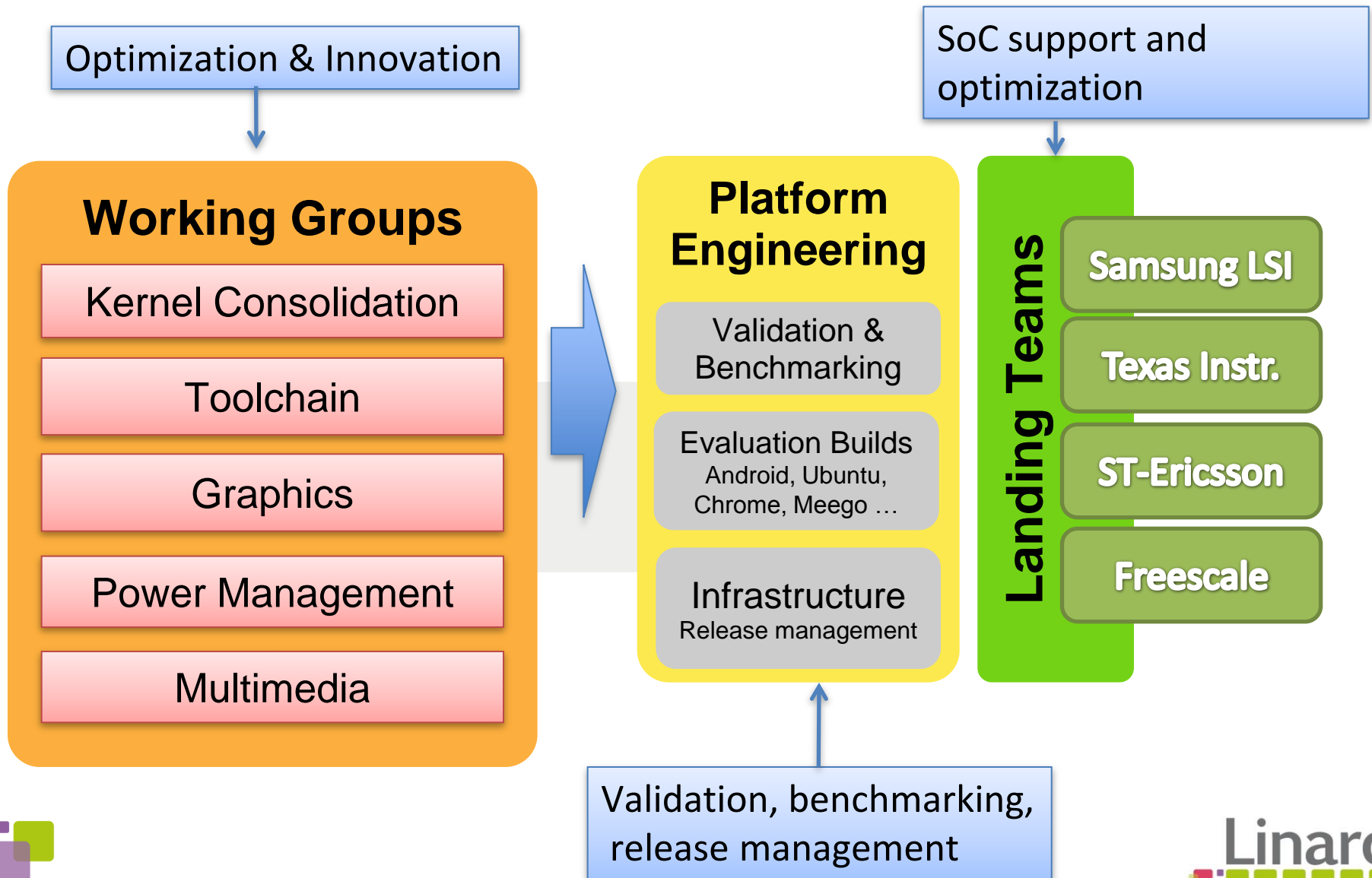


OEM
Linux

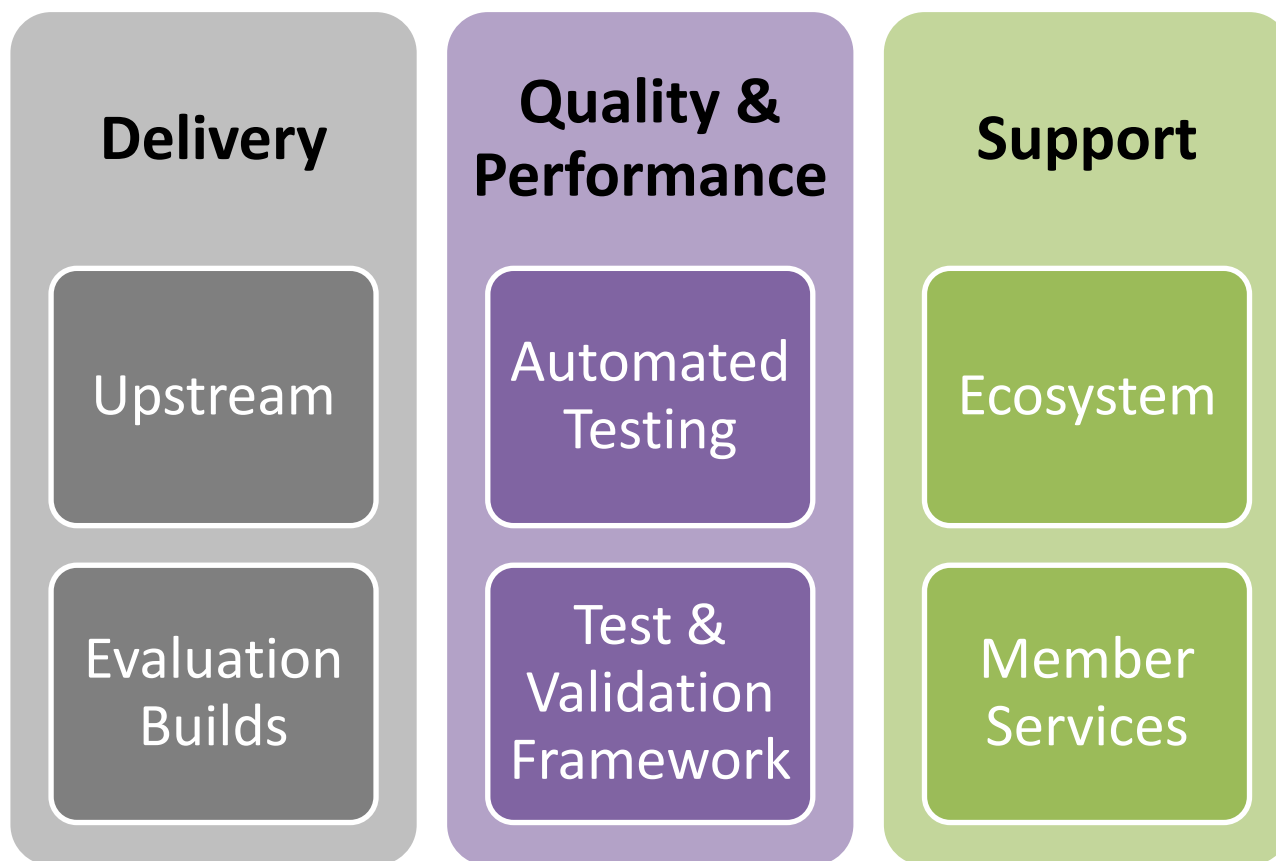
Where does Linaro fit?



Engineering units



Linaro 2011



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



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- 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



MeeGo



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





www.linaro.org

