Linaro Infrastructure and Validation

11.11 Public Plan Review

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Linaro

Platform Priorities

- Linaro for product builders and innovators
  - Central place for images of popular ARM/Linux distributions with integrated board support for Linaro Member SoCs
  - Provide early access to linaro technology nicely integrated and validate
  - Produced with tools and infrastructure developed **fully** in the open

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Platform Priorities

- Pervasive Integration and Validation
  - Close the continuous integration and validation loops within and across Linaro Teams
  - Continue expanding the automated test and benchmark repository towards a complete coverage of Ubuntu, Android and Working Group component stack
  - Integrate new and existing components of validation and build infrastructure into a complete solution

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Platform Priorities

- Engineering Efficiency
  - Continue supporting Linaro as an Engineering Organization with professional Productivity, Quality; Planning and Embedded Platform technology
  - Complete the cross-compilation work from previous cycle
  - Provide tools such as Gerrit to accelerate engineering efficiency
  - Provide remote access to hardware for development and testing

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Linaro Validation - Intro

- Development of automated testing frameworks and tools to help Linaro engineers validate Linaro images and comonents
- Support an automated testing lab running automated testing of Linaro on supported hardware

Linaro Validation

- Daily test runs
  http://validation.linaro.org/jenkins
- Validation Dashboard
  http://validation.linaro.org/launch-control
- Tools
  - LAVA - Linaro Automated Validation Architecture
  - Launch Control
  - Abrek

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P2.2	Continuous image building and validation	ESSENTIAL
P2.1	Continuous component integration	HIGH

- LAVA Scheduler
  - Queue jobs for dispatching on test boards
  - Token based authentication
  - Scheduling of jobs via API, CLI, or Web Interface

P2.2	Continuous image building and validation	ESSENTIAL
P2.1	Continuous component integration	HIGH

- Test Integration Frameworks
  - Improve existing Ubuntu based execution framework (abrek)
  - Android test execution framework to run Android based test suites

P2.1	Continuous component integration	HIGH

- Component Validation
  - Allow LAVA to take inject components, such as new kernels, into an image before running tests
  - Take output from continuous integration builds

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P2.2	Continuous image building and validation	ESSENTIAL

- LAVA Dispatcher Improvements
  - Better error detection and handling
  - Android improvements

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P2.2	Continuous image building and validation	ESSENTIAL

- Continuous Image Building and Validation
  - Accept events from build systems
  - Spawn new tests based on rules and event triggers
  - Easily create new rules, or modify existing ones

P2.3	Validation Hardware Expansion	HIGH

- Validation Lab
  - Expand support to cover new boards
  - Increase the number of boards to increase test capacity
  - Speed up deployment of new supported boards

P2.3	Validation Hardware Expansion	HIGH

- Linaro Dashboard
  - Easier viewing of results and attachments
  - Improved documentation
  - Performance enhancements

P2.3	Validation Hardware Expansion	HIGH

- Linaro Validation Website
  - Increase visibility of the latest test results on Linaro images
  - Provide places for working groups to show off their test results, and centralize where they go looking for data
  - Provide views interesting to other roles, such as release management

P2.4	Power Validation	**MEDIUM**

- Support power management testing
  - Add PMWG recommended hardware and software components for measuring power consumption
  - Modify testing framework to make use of these new components upon request

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P3.2	Remote development and porter boards	**MEDIUM**

- Provide remote development board access to Linaro engineers
  - Support scheduling of remote development on hardware in the validation lab
  - Add additional hardware as needed to accommodate increased demand
  - Provide documentation and tools for facilitating remote development and testing

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Infrastructure - Intro

- Serves Linaro organization by developing productivity tools and services that support overall developer efficiency, project management tracking and builds of Linaro output
- Team works 100% agile with projects and stakeholder input conveyed from TSC Topics as well as Engineering Team and Management needs.

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You might already know us!

Services:

- http://status.linaro.org
- http://android-build.linaro.org
- http://offspring.linaro.org

Tools:

- linaro-image-tools
- patch-tracking

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Pervasive Integration and Validation

- Continuous WG component integration and validation
  - Initially focus on kernel WG and toolchain WG components
  - Continuously build component trees and test the output in the validation farm
- Continuous image building and validation
  - Integrated solution for building and submitting image builds to the validation lab

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Engineering Efficiency

- Android code review with Gerrit
  - Essential for any serious Android development, code management, integration and release work
  - Close the continuous integration and review loop; build and validate all code submissions and support auto-merging by adding test and validation steps into it
  - https://blueprints.launchpad.net/linaro/+spec/tr-platforms-gerrit-codereview

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Engineering Efficiency

- Remote development and porter boards
  - Easy provisioning of freshly installed development boards in the validation lab
  - Allows testing kernel builds on wide variety of development boards on Android and Ubuntu
  - Comes with easy command line and later GUI tools for provisioning, administering and releasing board allocations

Engineering Efficiency

- Android build service
  - Scalable and replicable cloud build service for building cross-compilable embedded systems
  - Initially designed for Android, but backend approach allows adding support for other embedded builds (e.g. OE, Yocto, etc.)
  - Smart mirror of git source repositories in the cloud
  - Replicable by Members and Community
  - https://blueprints.launchpad.net/linaro/+spec/tr-platforms-android-build-tools/

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Engineering Efficiency

- Improvements to Hardware Packs to ease enablement
  - Improved metadata management to improve future backward compatibility and robustness of codebase
  - Support for consolidated per-SoC hardware packs
  - More convenience for Landing Teams and members for hardware pack creation
  - https://wiki.linaro.org/Platform/Specs/11.11/HardwarePacksV2
  - https://wiki.linaro.org/Platform/Specs/11.11/OneHardwarePackPerSOC

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Stakeholders Project: Offspring

- Linaro managed Offspring for Ubuntu image and hardware pack builds
  - http://offspring.linaro.org
  - accessible to Linaro teams, members and community
  - open-source code base that can be replicated inside member walls
  - Support for derived archives
  - nicely integrated with LAVA to allow continuous ubuntu image validation

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Stakeholder Project: TestDrive

- Powerful download and install tool for Linaro Android and Ubuntu LEBs and Hardware Packs.
- Improve the first use experience for people wanting to try Linaro images
- Speed up manual testing through automation
- https://wiki.linaro.org/Platform/Infrastructure/Specs/TestDrive

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Other topics

- Private hardware pack builds for Landing Teams
- Work tracking and reporting improvements
- More will arrive through the Stakeholder Process: https://wiki.linaro.org/Platform/Infrastructure/StakeholderProcess

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