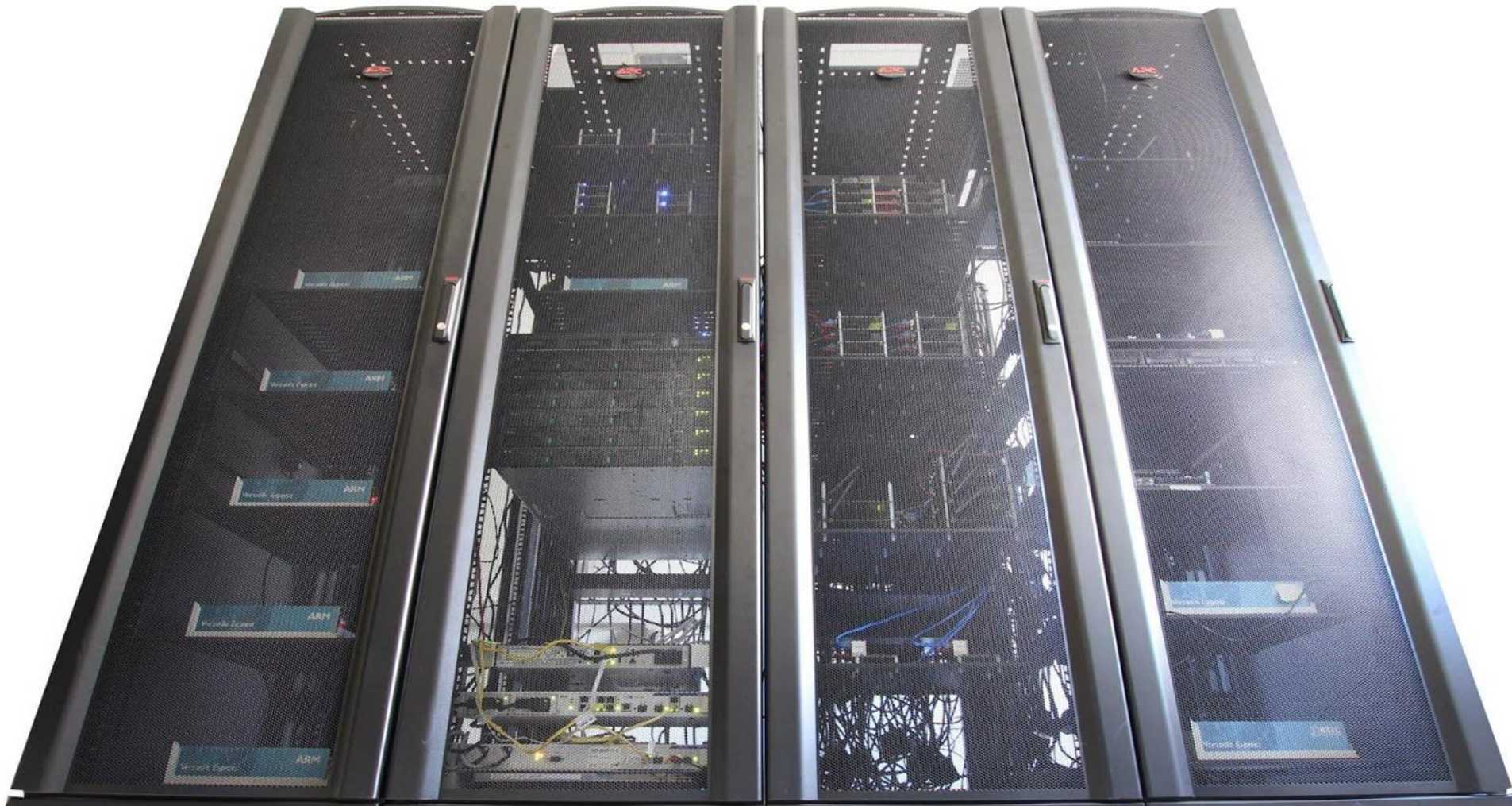


LAVA Workshop @ LCA 13

LAVA Overview



Dave Pigott – March 2013



LAVA Workshop

- Day 1 – Tuesday
 - Introduction
 - An overview of LAVA - Dave Pigott
 - A LAVA Success Story - Tyler Baker
- Day 2 – Wednesday
 - Grand Ballroom B, 4pm-6pm
 - Hands-On LAVA
 - Installing LAVA - Antonio Terceiro
 - Test Suites - Senthil Kumaran
- Day 3 – Thursday
 - Grand Ballroom C&D
 - Open Q&A Session – Kate Stewart



LAVA Hands On – Wednesday 4pm - 6pm

- Requirements
- Laptop

At least 4GB Ram

Virtualisation support (i.e. Intel i3-i7)

- Software

VirtualBox 4.1 or later (Linux, Windows and OS X supported <https://www.virtualbox.org/>)

LAVA VM Image

<http://deb.li/lavavm>

- Limited space, but some spaces available
- E-mail lca13-lava@linaro.org and turn up

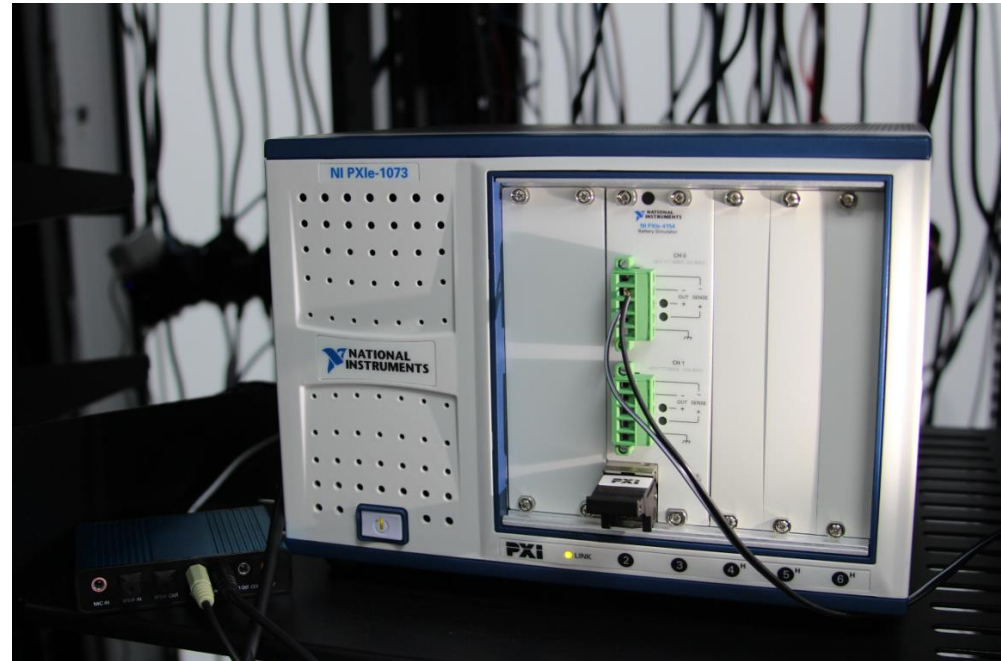
Linaro Open Source Testing & Validation

- Open Source Software traditionally has limited testing
- LAVA – Linaro Automated Validation Architecture
- Lab is populated by Linaro member hardware
- Provides Members:
 - Continuous Integration for daily build & testing
 - Smoke, System and Regression testing
 - Web dashboard for results and trends
 - Measures distribution quality & trends
- Framework is open source
- Linaro maintaining large and expanding farm of latest Member SoC boards, servers, models and consumer devices



LAVA – Why LAVA?

- Validate Linaro Engineering output
- Test Linaro Engineering output on a diverse range of member hardware
- Support automated kernel testing
- Ensure a device can be bricked, including the bootloader, and resurrected without manual intervention
- No assumptions of special capabilities



LAVA – What it is

- A framework for testing software on member hardware
- Accepts "jobs" to perform on target device types
- Jobs produce result bundles
- LAVA itself is an enabler - we do not define the tests that can be run
- A black box to CI - all devices have the same LAVA interface
- A cloud like solution for ARM devices



LAVA – What can I do with it?

- Submit jobs that will be run on a selected device with user selected combination of kernel and system image
- Run user selected and defined tests on that image
- Can execute anything - e.g. toolchain submission

The screenshot displays the LAVA Scheduler web interface. At the top, there's a navigation bar with links: LAVA, Android Benchmarks, Dashboard, Graphics, Kernel CI, Projects, Scheduler, API, and Documentation. A user is logged in as 'Guest'. Below the navigation bar, the page title is 'You are here: LAVA » Scheduler'. The main content area is divided into two sections: 'Device Type Overview' and 'Active Jobs'.

Device Type Overview

37/61 devices online
27/30 health check jobs passed in 24 hours

Show 10 entries

Name	Status
beaglexm	2 idle, 0 offline, 1 busy
origen	5 idle, 2 offline, 0 busy
panda	12 idle, 9 offline, 2 busy
panda-es	3 idle, 1 offline, 0 busy
rtsm_foundation-armv8	1 idle, 0 offline, 0 busy
rtsm_ve-a15x1-a7x1	1 idle, 0 offline, 0 busy
rtsm_ve-a15x4-a7x4	2 idle, 0 offline, 0 busy
snowball_sd	2 idle, 3 offline, 4 busy
vexpress-a9	2 idle, 0 offline, 0 busy
vexpress-tc2	0 idle, 3 offline, 0 busy

Showing 1 to 10 of 10 entries

[All Devices](#)
[All Devices Health](#)

Active Jobs

Show 10 entries

ID	Status	Device	Description	Submitter	Submit Time
37873	Running	beaglexm01	lab-health-beaglexm	lava-health	Nov. 6, 2012, 1:38 p.m.
37872	Running	panda10	lab-health-panda	lava-health	Nov. 6, 2012, 1:32 p.m.
37385	Submitted	vexpress-tc2	https://android-build.linaro.org/jenkins/job/linaro-android-restricted_vexpress-jb-gcc47-armit-tracking-open-test/34/	android-build-system	Nov. 1, 2012, 6:33 a.m.
37283	Submitted	vexpress-tc2	https://android-build.linaro.org/jenkins/job/linaro-android-restricted_vexpress-jb-gcc47-armit-tracking-open-test/33/	android-build-system	Oct. 31, 2012, 6:52 a.m.
37269	Running	snowball03	https://android-build.linaro.org/jenkins/job/linaro-android_snowball-jb-gcc47-igloo-stable-blob/111/	android-build-system	Oct. 31, 2012, 4:42 a.m.
37189	Submitted	vexpress-tc2	https://android-build.linaro.org/jenkins/job/linaro-android-restricted_vexpress-jb-gcc47-armit-tracking-open-test/32/	android-build-system	Oct. 30, 2012, 6:50 a.m.
37176	Running	snowball08	https://android-build.linaro.org/jenkins/job/linaro-android_snowball-jb-gcc47-igloo-stable-blob/110/	android-build-system	Oct. 30, 2012, 4:42 a.m.
37094	Running	panda19	https://android-build.linaro.org/jenkins/job/linaro-android_panda-jb-gcc47-tilt-tracking-blob/97/	android-build-system	Oct. 29, 2012, 8:09 a.m.
37088	Submitted	vexpress-tc2	https://android-build.linaro.org/jenkins/job/linaro-android-restricted_vexpress-jb-gcc47-armit-tracking-open-test/31/	android-build-system	Oct. 29, 2012, 6:45 a.m.
36991	Submitted	vexpress-tc2	https://android-build.linaro.org/jenkins/job/linaro-android-restricted_vexpress-jb-gcc47-armit-tracking-open-test/30/	android-build-system	Oct. 28, 2012, 6:46 a.m.

Showing 1 to 10 of 14 entries

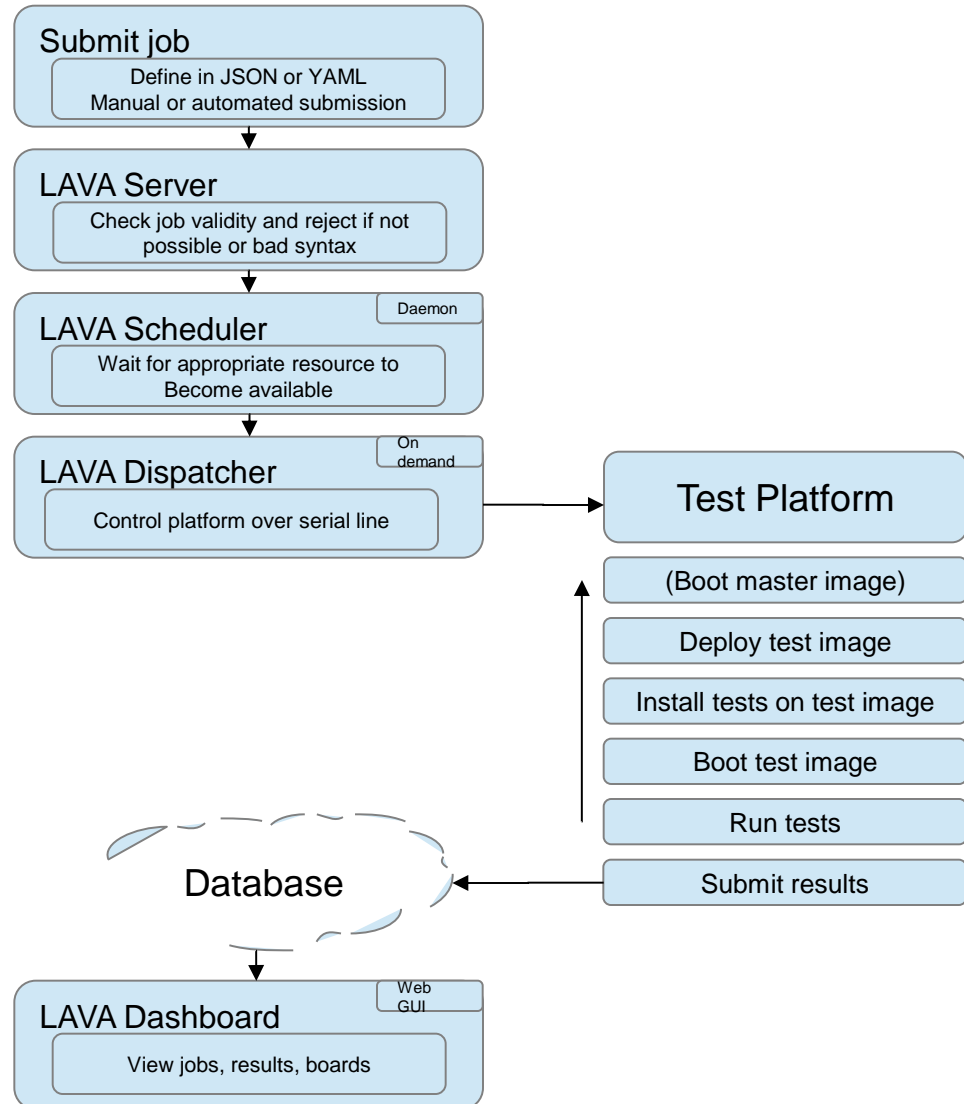
[All Jobs](#)

LAVA Reliability

- Must be confident that if a job fails it is most likely the job and not LAVA
- Health checks run once every 24 hours
- If a board fails it is taken offline
- Reliability now 99%

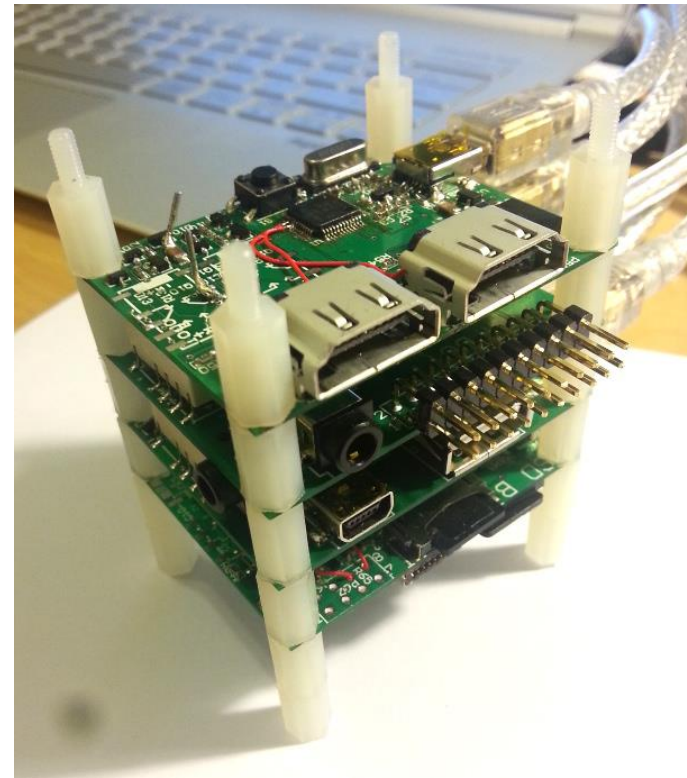


LAVA Workflow



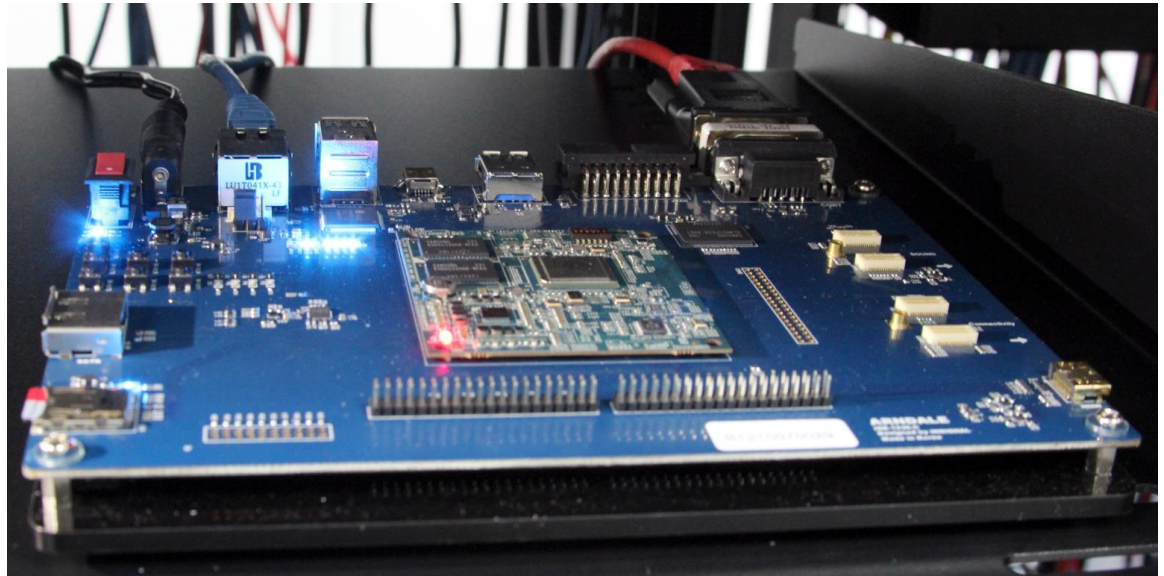
Different ways to use LAVA

- LAVA as a service
- LAVA as a product
- LAVA for developers
- Easy deployment - lava-deployment-tool
- lava-test-shell



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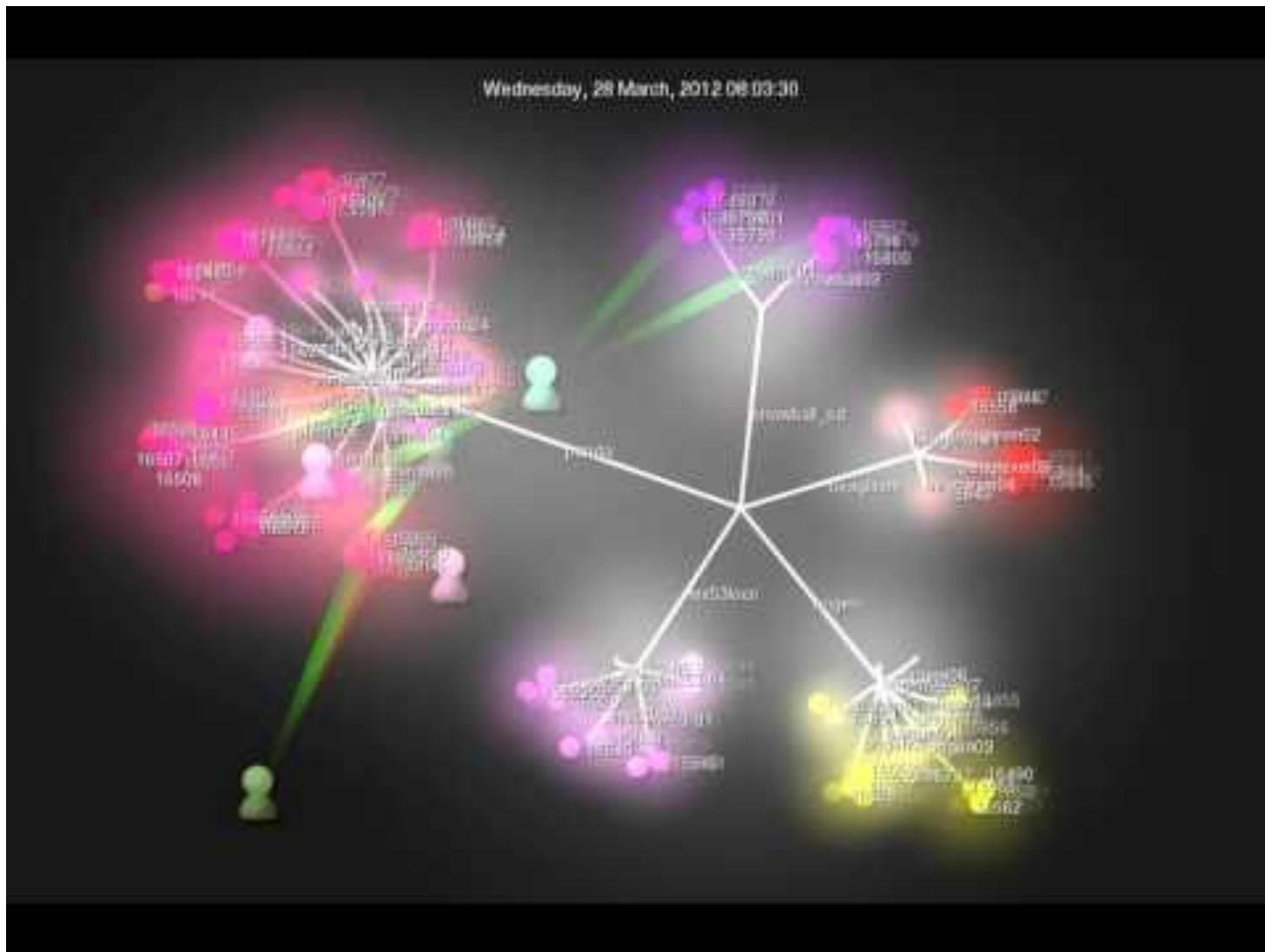


LAVA Lab Inventory

- 87 Devices & 276 ARM CPUs
 - 4 TI Beagleboards
 - 30 TI Panda 4430s
 - 14 TI Panda 4460s
 - 10 ST-Ericsson Snowball PDKs
 - 10 Samsung Origenes
 - 4 Samsung Quad Core Origenes
 - 5 Samsung Arndale boards
 - 2 ARM Versatile Express a9s
 - 1 ARM Versatile Express a5
 - 4 ARM Versatile Express TC2s
 - 2 Calxeda 96 CPU Servers
 - 1 Samsung Galaxy Nexus



LAVA Lab Usage



Future plans

- Bootloader testing with SD-MUX
- Test suite helper tool
- LAVA Lmp
- Linaro Enterprise Group (LEG) adding servers to farm
- Linaro Network Group (LNG) support plans



Summary

- LAVA usage is growing
- LAVA interest is growing
- LAVA lab expanding
- Enough requirements to keep us busy for a long time

