Large Scale Deployments for Automated Testing

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Automated testing in Linaro

- Introduction To LAVA
- How does LAVA deploy test images?
- What if the board gets bricked?
- Connectivity
- Physical Deployment
- Administration
- Staging Instances
- Large Scale Deployments going forward
Introduction to LAVA

• The Linaro Automated Validation Architecture
• First implementation started in late 2010
• Second iteration development - LAVA V2 started 2014
• Rolled out fully in 2017 in LAVA Lab, Cambridge
LAVA Device Challenges

- Power on Boot
- Unique device identification
- Serial Connectivity
What if the board gets bricked?

- Power Control
- Ethernet controlled relays for push button emulation
- Re-flash firmware
- Board dependent
- Solder mods mean solution doesn’t scale well
LAVA Devices - Connectivity

• Quality cables
  • Worth the extra money - massively reduces test failures

• USB Hubs
  • Have to have individual port power control
LAVA - Physical Deployment

- Wide range of form factors
- Up to medium size - use monitor shelves
- Some come in cases
- Otherwise re-factor into 1u case
- Multiple boards per case
LAVA - Administration

- Configuration Management
- Salt
  - Server and LAVA configuration
  - Git repo - https://git.linaro.org/lava/lava-lab.git
- Ansible
  - User account management
  - Git repo - https://git.linaro.org/lab-cambridge/lab-ansible.git/
- VPN access
  - Required for LAVA hacking sessions and direct board interaction
  - develop-lxc script in lava-lab repo allows users to interact with a DUT
LAVA - Staging Instances

• Very important for testing out new releases of LAVA

• Key to testing out new firmware/boottloaders
• Working with 3rd party to fit up to 16 of the 96boards CE form factor in 1u