Designing a Versatile Software Build Cluster Using Open Build Service

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Motivation

- Create a centralized build cluster to improve the process of building packages and virtual machine images.
- Current build process involves utilizing clock cycles on workhorse machines.

Potential Issues

- Composed of Python, Ruby on Rails, Bash, and Perl
  - Requires extended knowledge to fix problems
- Circular Dependencies
  - A package trying to install itself in order to install itself

Features

- Builds .debs, .rpms, .archs, and VM images
- Imports pre-built packages
- Subversion version control
- Automatic build either on file commit or on-demand
- Command line interface
- Web interface (Figures 1 & 2)
- Open Source (GPL license)
- Public OpenSUSE instance
- Host Private instance

Future Implementation

- Master node: schedule and host web interface
- Slave nodes: build packages prescribed by master node
- Matching architecture slave nodes needed for each build architecture
- Provision using Ansible, the proposed next generation software stack configuration management tool
- Add more slave nodes upon introduction of additional processor architectures

Figure 1: Web UI

Figure 2: Web UI
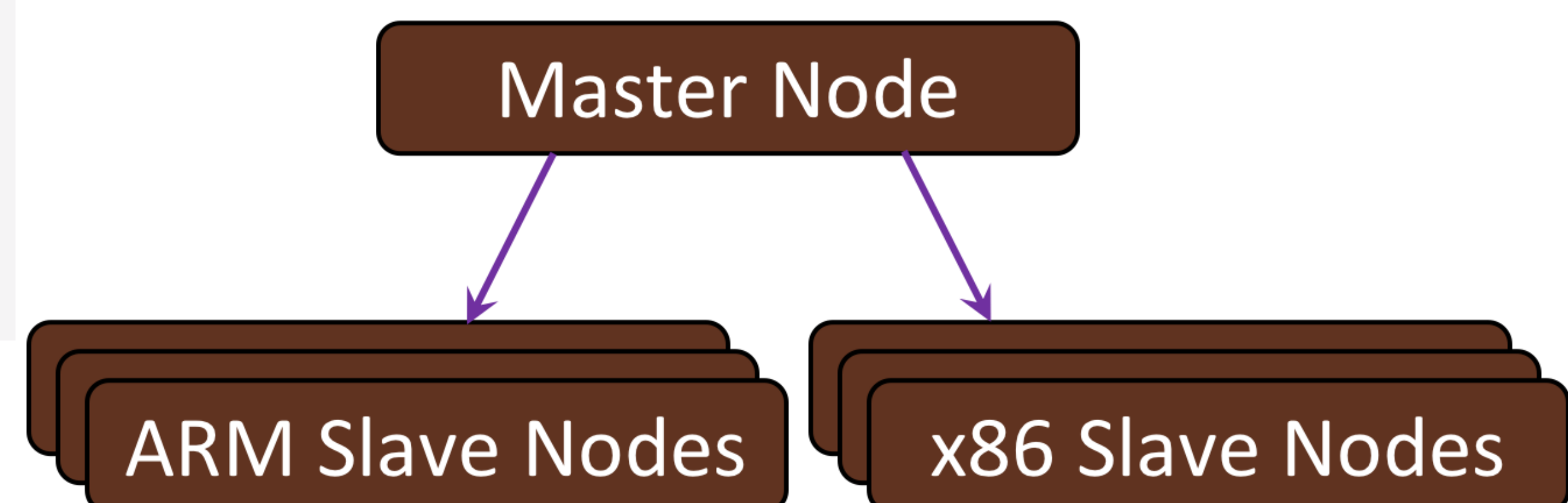

Figure 3: Cluster

Road Map

Completed
- Installed pre-built iso onto a VM
- Setup repos

To-do
- Harden configuration
- Build Slurm

Summary

- No dedicated hardware for building necessary packages and virtual machine images
- Open Build Server meets the needs for a dedicated build cluster