



# 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

Overview Repositories Revisions Requests Users Advanced

**Slurm** [Download package](#)

No description set  
[Branch package](#) [Submit package](#) [Edit description](#) [Delete package](#)

**Source Files**

Filename	Size	Changed	Actions
slurm-17.11.7.tar.bz2	6.01 MB	26 days ago	<a href="#">Download</a> <a href="#">Delete</a>
slurm.spec	37.3 KB	25 days ago	<a href="#">Download</a> <a href="#">Delete</a>

Showing 1 to 2 of 2 entries

**Build Results** **Rpmlint Results**

Repository	i586	x86_64
CentOS_6	unresolvable	unresolvable
CentOS_7	unresolvable	succeeded
openSUSE_Tumbleweed	unresolvable	unresolvable

Figure 1: Web UI

Overview Repositories Revisions Requests Users Attributes Meta

You can configure individual flags for this package here. The repositories are inherited from the project home:richarddesnyder

**Build Flag**

Repository	All	i586	x86_64
All	<a href="#">Configure</a>	<a href="#">Configure</a>	<a href="#">Configure</a>
CentOS_6	<a href="#">Configure</a>	<a href="#">Configure</a>	<a href="#">Configure</a>
CentOS_7	<a href="#">Configure</a>	<a href="#">Configure</a>	<a href="#">Configure</a>
openSUSE...bleweed	<a href="#">Configure</a>	<a href="#">Configure</a>	<a href="#">Configure</a>

**Debuginfo Flag**

Repository	All	i586	x86_64
All	<a href="#">Configure</a>	<a href="#">Configure</a>	<a href="#">Configure</a>
CentOS_6	<a href="#">Configure</a>	<a href="#">Configure</a>	<a href="#">Configure</a>
CentOS_7	<a href="#">Configure</a>	<a href="#">Configure</a>	<a href="#">Configure</a>
openSUSE...bleweed	<a href="#">Configure</a>	<a href="#">Configure</a>	<a href="#">Configure</a>

Figure 2: Web UI

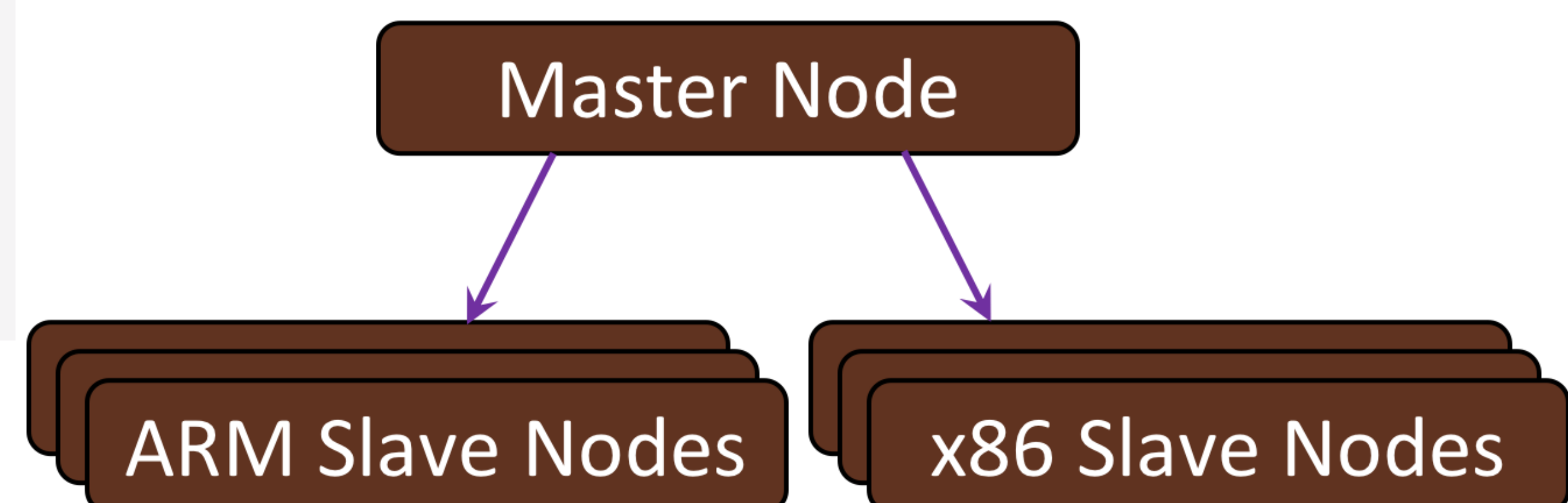


Figure 3: Cluster

## 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