Version Control Your Jenkins Jobs w/ Jenkins Job Builder

presented by Wayne Warren

Wayne Who?

- Quality Engineer at Puppet Labs
- Core Jenkins Job Builder (JJB) developer
- Past lives:
  - Embedded Linux kernel & filesystem developer
  - White box testing of medical devices
  - Computer Engineering degree
- Find me online!
  - https://github.com/waynr/
  - “waynr” on irc.freenode.net
    - #openstack-infra

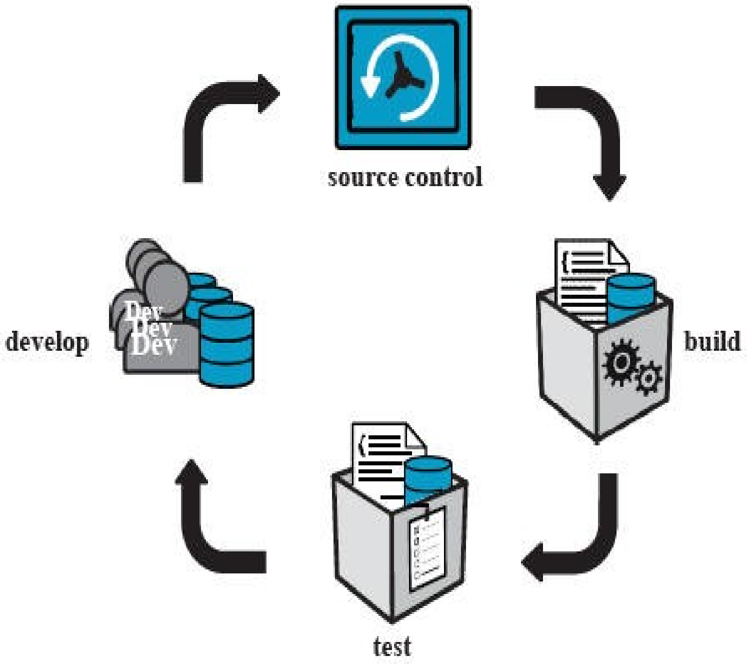
Outline

- Assumptions
- Jenkins Job Builder 1.x
  - What is it?
  - Why use it?
  - Simple Example
  - Difficulties
- Jenkins Job Builder 2.x
- Jenkins Manager
  - What is it?
  - Why use it?
  - Demo
- Q&A

Assumptions

- Familiarity with version control
- Familiarity with the concept of “Continuous Integration” (CI)
- Understand distinction between YAML and Python

Continuous Integration



What is Jenkins Job Builder (JJB)?

- Command line tool
- Maintained by Openstack Infra community
- Define Jenkins jobs in YAML
- Generate Jenkins job XML
- Create/update jobs using Jenkins' HTTP API

Why use JJB?

- Reduce CI configuration effort.
- Reduce “drift” between similar CI jobs.
- Quickly & easily deploy CI changes.
- Minimize time spent in the Jenkins UI.

Version control job configuration!

- Revert to known good configurations.
  - Reduce negative consequences of change.
  - Reduce fear of change.
- Enable gating of changes on team review.
- Periodically enforce configuration state.

Simple JJB Demo

Difficulties w/ JJB DSL

- No best practices or style guide.
- Confusing variable scoping and default value rules.
- Counter-intuitive collection management.
- Steep learning curve.

Difficulties w/ JJB 1.x Codebase

- Impossible to understand procedural code.
- Unclear domain boundaries.
- Monolithic classes.
- CLI tests bound to API implementation details.

JJB 2.x Refactor: Goals

- Maintain CLI compatibility w/ 1.x
- Strictly define and document API
- Disentangle high-level objects
- Separate XML generation from YAML parsing.
- Rewrite tests bound to internal JJB implementation details.

JJB 2.x Refactor: Progress

- Refactoring is largely complete.
- Awaiting review:
  - https://review.openstack.org/#/q/topic:+jjb-2.0.0-api
- JJB reviews can last many months.
- No PyPi packages available yet :(

Jenkins Manager

- Command line tool & job definition API built with JJB 2.x library.
  https://github.com/waynr/jenkins-manager
- Define jobs & pipelines in Python.
- More of a hobby/experiment. (< 1 week old)
- No plans to use at Puppet Labs.

Why use Jenkins Manager?

- <insert reasons for using JJB here>

Why use JJB?

- Reduce CI configuration effort.
- Reduce “drift” between similar CI jobs.
- Quickly & easily deploy CI changes.
- Minimize time spent in the Jenkins UI.

Why use Jenkins Manager?

- <insert reasons for using JJB here>
- Data serialization is for computers.
- Python is relatively well-known.
- Create, Package, & Share your CI abstractions.
- Use community-defined CI abstractions.
- Write unit tests for your CI jobs.

Jenkins Manager Demo

Demo Summary

Questions & Answers

More Info

- Presentation, notes, tutorial
  - Github repo
- Openstack
  - JJB official documentation
  - JJB git repo
  - JJB developer manual
  - #openstack-infra on irc.freenode.net
- Puppetlabs QE Team is hiring!
  - https://puppetlabs.com/about/careers