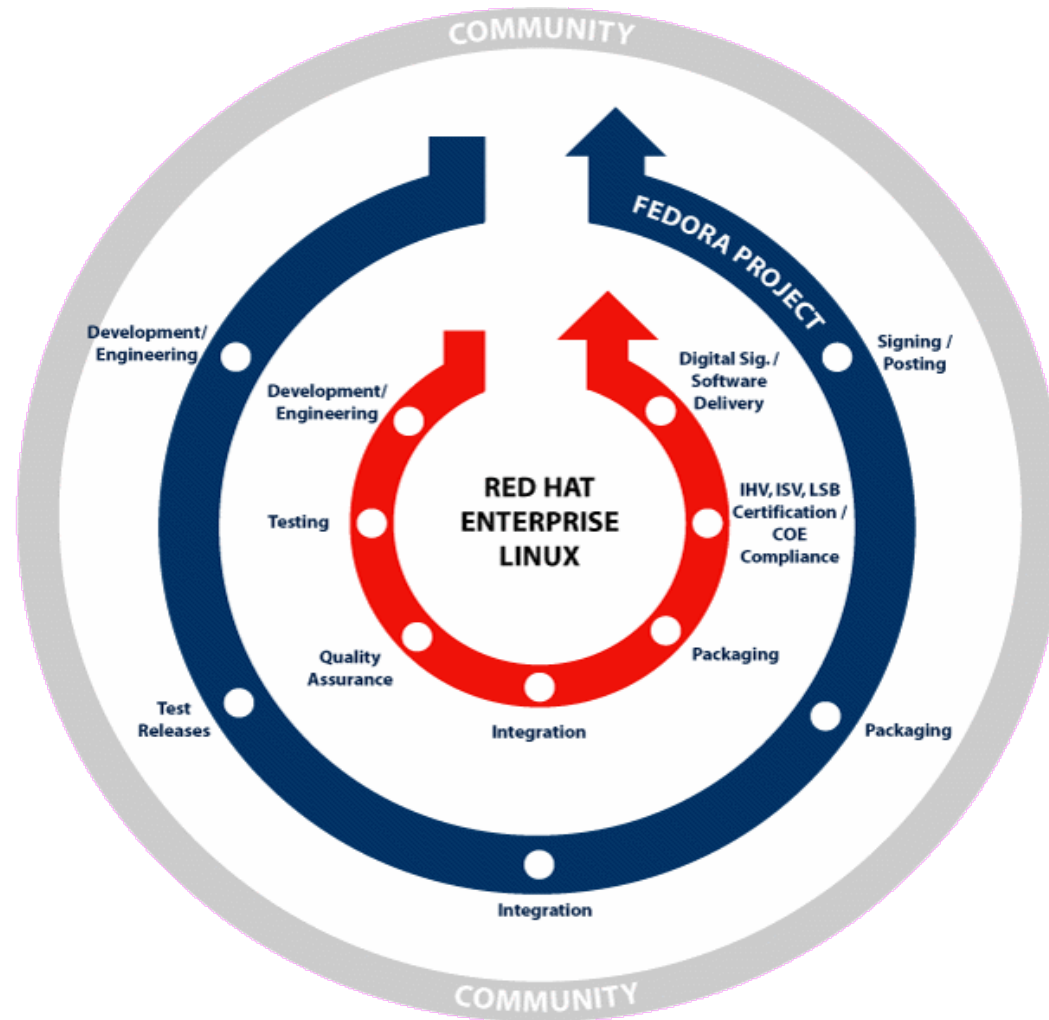# Fedora for System z:
The Open Source Build Process Explained

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March 3, 2009

Agenda

- What is Fedora?
- Koji Overview
- Package Organization
- Creating an Account
- Using Koji
- Configuring the Koji Hub
- Configuring the Builders
- Putting it All Together
- How to Help

What is Fedora?

Koji Overview

- Everything you need to build a compete distribution
- Centralized interface, modular design
  - Web frontend
  - XMLRPC server
  - Backend database
  - Remote builders
- Used internally for years
- Primary vs. Secondary architectures

Koji Overview

- koji-hub
  - Passive XMLRPC server, mod_python under Apache
  - Direct access to PgSQL db, file system r/w
- kojid
  - Build daemon running on each guest
  - Poll hub, use mock to create buildroot
- koji-web
  - Scripts run under mod_python, cheetah templating engine
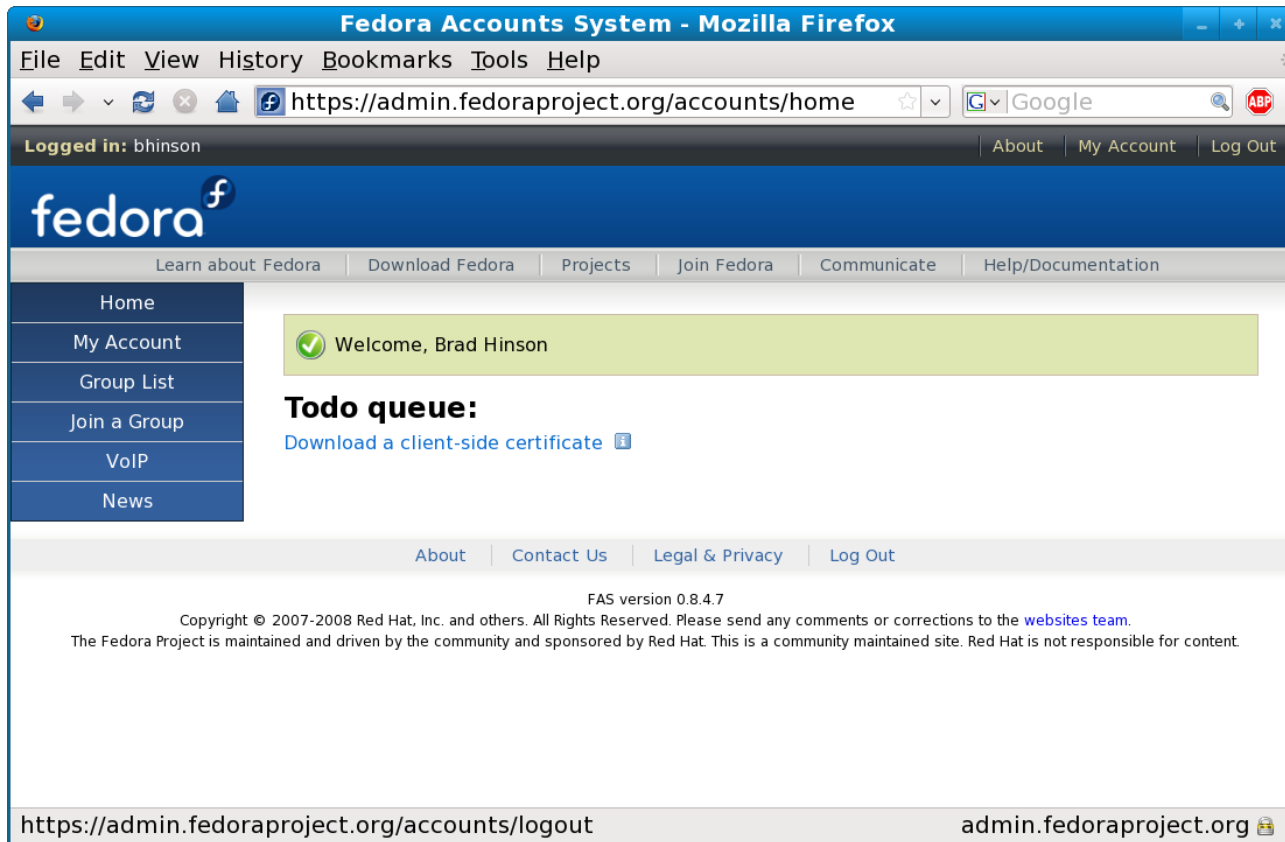 - Exposes web UI for most common build operations

Koji Overview

- koji

  - CLI written in Python

  - Query data, perform broader set of actions

  - Authentication by SSL, Kerberos, or plaintext

- kojira

  - Daemon to run createrepo tasks on demand

  - Clear stale repos

Package Organization

- Tags and Targets
    - Tag is a method for organizing packages
    - Support for multiple inheritance
    - Target specifies how to build a package, and how to tag afterwards
    - koji list-targets
- Package Lists
    - List of all packages in a tag, including inherited ones

Creating an Account

- https://admin.fedoraproject.org/accounts/
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Using Koji

- Install the koji cli
  - yum install fedora-packager
  - /usr/bin/fedora-packager-setup
    - ~/.fedora.cert (user specific)
    - ~/.fedora-upload-ca.cert (CA used to sign user keys)
    - ~/.fedora-server-ca.cert (CA for build system keys)
  - ~/.koji/config
  - Browser certificate

Using Koji

- Web interface
  - http://s390.koji.fedoraproject.org/koji/
  - Read-only until login
  - With sufficient privileges
    - Cancel a build
    - Resubmit a failed task
    - Setup a notification
  - Admin only
    - Create/edit/delete tag or target
    - Enable/disable build host

Using Koji

- Command line interface
    - List available targets
        - koji list-targets
    - List packages in a tag
        - koji list-pkgs --tag <tag>
    - Submit a build
        - koji build --scratch <target> <SRPM/url>

Configuring the Koji Hub

- http://fedoraproject.org/wiki/Koji/ServerHowTo
- IBM x3500, 8 GB RAM, 1.5 TB disk space
    - koji-hub, koji-web, kojira
- Fedora 10 with updated mock, yum, createrepo
- Initialize PostgreSQL database
- Generate certificates for web, builders
- Create targets, import and tag packages
    - Bootstrapping can be tough, lots of dependency issues
- # service httpd start
- # service kojira start

Configuring the Builders

- Currently 2 builders on internal Red Hat z9
    - RHEL 5-ish, 2 GB storage, 5xmod3, 1xmod27
    - http://people.redhat.com/bhinson/zedora/
- Use public SSL certificate from hub to authenticate
- Need free space under /var/lib/mock
- # service kojid start
- Configure hub as builder with createrepo authority
-

Putting It All Together

- Mash
    - Tool to query and download all packages of a given tag
- Pungi
    - Create an installable tree with ISO images
        - Call scripts from anaconda-runtime to build initial RAMdisk and install images (like stage2.img)
        - Create generic PARM file
        - Build CD/DVD ISOs
        - http://fedorahosted.org/pungi/
- http://secondary.fedoraproject.org/

Timeline

- The Christmas crash
- New staff
    - Fedora for System z maintainer
    - Dedicated secondary architecture QA person
- Coming soon!

How to Help

- Builders
  - kojid running on one or more guests
- Testers
  - Heavy development areas
    - NetworkManager and qeth
    - Java
    - Anaconda
- http://bugzilla.redhat.com/
- irc.freenode.org
  - #fedora-s390x, #koji
- fedora-s390x@lists.fedoraproject.org