Open Source Systems Administration

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HP
OpenStack Infrastructure Team

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Elizabeth K. Joseph

- Linux Systems Administrator
- Ubuntu Community Council Member & Co-author of The Official Ubuntu Book, 8th Edition
- Director for the non-profit Partimus.org
- Really likes open source software
The OpenStack Infrastructure team maintains the servers OpenStack developers use worldwide to contribute to OpenStack
The OpenStack Infrastructure is also an Open Source project

(Other projects and companies even use it!)
All code repositories are available online:
https://git.openstack.org/cgit/openstack-infra
Changes are proposed by anyone through a public code review system (Gerrit):
https://review.openstack.org/
We use OpenStack's CI Infrastructure

- Launchpad *(coming soon: StoryBoard)*
- Git
- Gerrit
- Zuul*
- Gearman
- Jenkins *(with jenkins-job-builder*)
- Nodepool* *(with devstack-gate*)

* Started by the OpenStack Infrastructure team
OpenStack CI Workflow

- Github mirror
- git.openstack.org mirror
- Git repository
- Gerrit code review
- Zuul
- Jenkins (gearman-plugin)
- Gearman Server
- pipy mirrors & other semi-privileged servers
- Jenkins01,02...
- Ubuntu, Fedora, CentOS & devstack slaves

Local changes submitted via git-review
As a user: git-review and Gerrit

elizabeth@r2d2$ ~/git/openstack-infra$ git clone git://git.openstack.org/openstack-infra/publications
elizabeth@r2d2$ ~/git/openstack-infra/publications$ vim index.html
elizabeth@r2d2$ ~/git/openstack-infra/publications$ git commit -a
    [toolsconfigs/updates 0c63f4a] Update tools and review purposes.
        1 file changed, 4 insertions(+)
elizabeth@r2d2$ ~/git/openstack-infra/publications$ git review
    Amending the commit to add a gerrit change id.
    remote: Resolving deltas: 100% (2/2)
    remote: Processing changes: new: 1, refs: 1, done
    remote:
    remote: New Changes:
    remote:  https://review.openstack.org/128722
    remote:
    To ssh://lyz@review.openstack.org:29418/openstack-infra/publications.git
        * [new branch] HEAD -> refs/publish/sysadmin-codereview/toolsconfigs/updates
<div class="slide">
<h1>What we use it for</h1>
<ul>
<li>All core OpenStack projects</li>
<li>StackForge projects</li>
<li>Documentation</li>
<li>Translations imports</li>
<li>Project specifications</li>
</ul>
</div>

<div class="slide">
<h1>What we do</h1>
<ul>
<li>Anyone can write code reviews</li>
<li>flake8 (pep 8 and pyflakes)</li>
<li>puppet parser validate</li>
<li>puppet-lint</li>
<li>XML</li>
<li>Alphabetized project files</li>
</ul>
</div>

<div class="slide">
<h1>Peer Review</h1>
<ul>
</ul>
</div>
What uses this CI system

All core OpenStack projects
StackForge projects
Documentation
Translations imports
Project specifications
Systems Administration
What we do as OpenStack Infrastructure Systems Administrators
Maintain a bunch of stuff

- Continuous Integration systems
- Cacti
- Elasticsearch, Logstash and Kibana
- IRC Bots
- Etherpad
- Git
- Paste
- Planet
- Puppetboard
- Mailing Lists
- Various smaller web services
- Wiki
Test our patches

- flake8 (pep 8 and pyflakes)
- bashate
- puppet parser validate
- puppet-lint
- Beaker
- XML
- Alphabetized project files
Code review benefits: Peer review

- Multiple eyes on changes prior to merging
- Good infrastructure for developing new solutions (particularly for a distributed team)
- No special process to go through for commit access
- Trains us to be collaborative by default
How do you know what's going on with your servers?
Cacti: http://cacti.openstack.org/

<table>
<thead>
<tr>
<th>Status</th>
<th>Hostname</th>
<th>Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>unreported</td>
<td>fungi-test.openstack.org</td>
<td>No Report</td>
</tr>
<tr>
<td>unreported</td>
<td>openstackid.org</td>
<td>Latest</td>
</tr>
<tr>
<td>unreported</td>
<td>groups.openstack.org</td>
<td>Latest</td>
</tr>
<tr>
<td>failed</td>
<td>jenkins-dev.openstack.org</td>
<td>Latest</td>
</tr>
<tr>
<td>changed</td>
<td>caci.openstack.org</td>
<td>Latest</td>
</tr>
<tr>
<td>changed</td>
<td>logstash.openstack.org</td>
<td>Latest</td>
</tr>
<tr>
<td>changed</td>
<td>groups-dev.openstack.org</td>
<td>Latest</td>
</tr>
<tr>
<td>changed</td>
<td>jenkins03.openstack.org</td>
<td>Latest</td>
</tr>
</tbody>
</table>

79 Population
13791 Resources managed
175 Avg. resources/node
Documentation: http://ci.openstack.org/
Security

The whole world knows what we run and how we run it.

We need to be diligent about locking down services that believe they live behind an authentication wall.

And when we're not? Be aware of the risks and prepared to deal with the consequences.
We need to fully trust some people

We can't give access to everything to everyone on the Internet and we can't do everything through code review

Some shell access is still required
(views logs, migrations, unusual service failures)

Private management of sensitive data
(keys, certificates, passwords)

Core reviewers have the power to push anything that passes tests through
(self-approval, patch ninja-ing)
Questions?

Documentation: http://ci.openstack.org/

Contact me: lyz@princessleia.com
Credits

CC BY-SA slide background source: "The gate's unlocked!!! by Tripp"
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The whole OpenStack Infrastructure team for the extraordinary work being done!