

Open Source Systems Administration

Elizabeth K. Joseph
@pleia2

HP
OpenStack Infrastructure Team

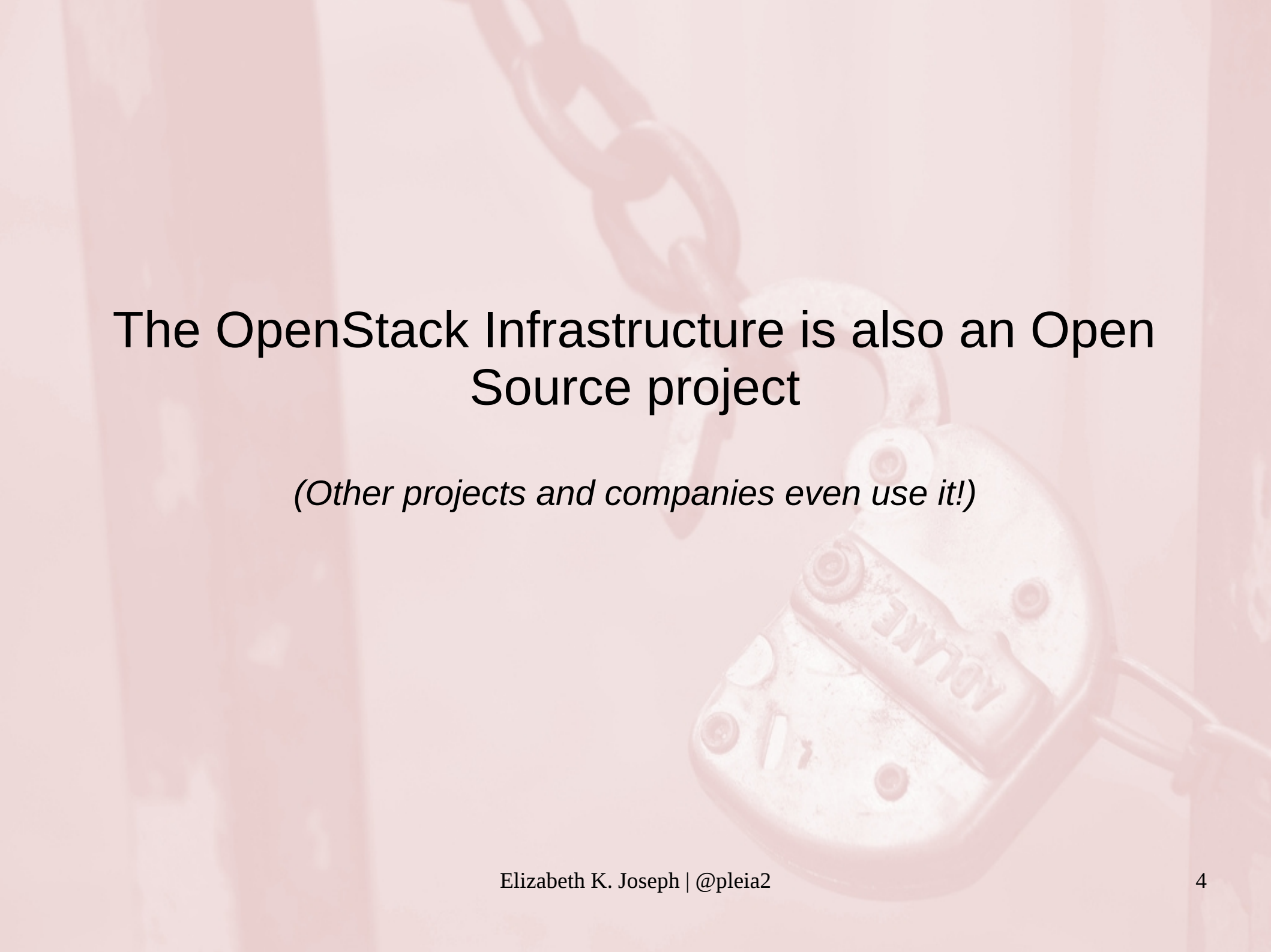
All Things Open, 22 October 2014

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

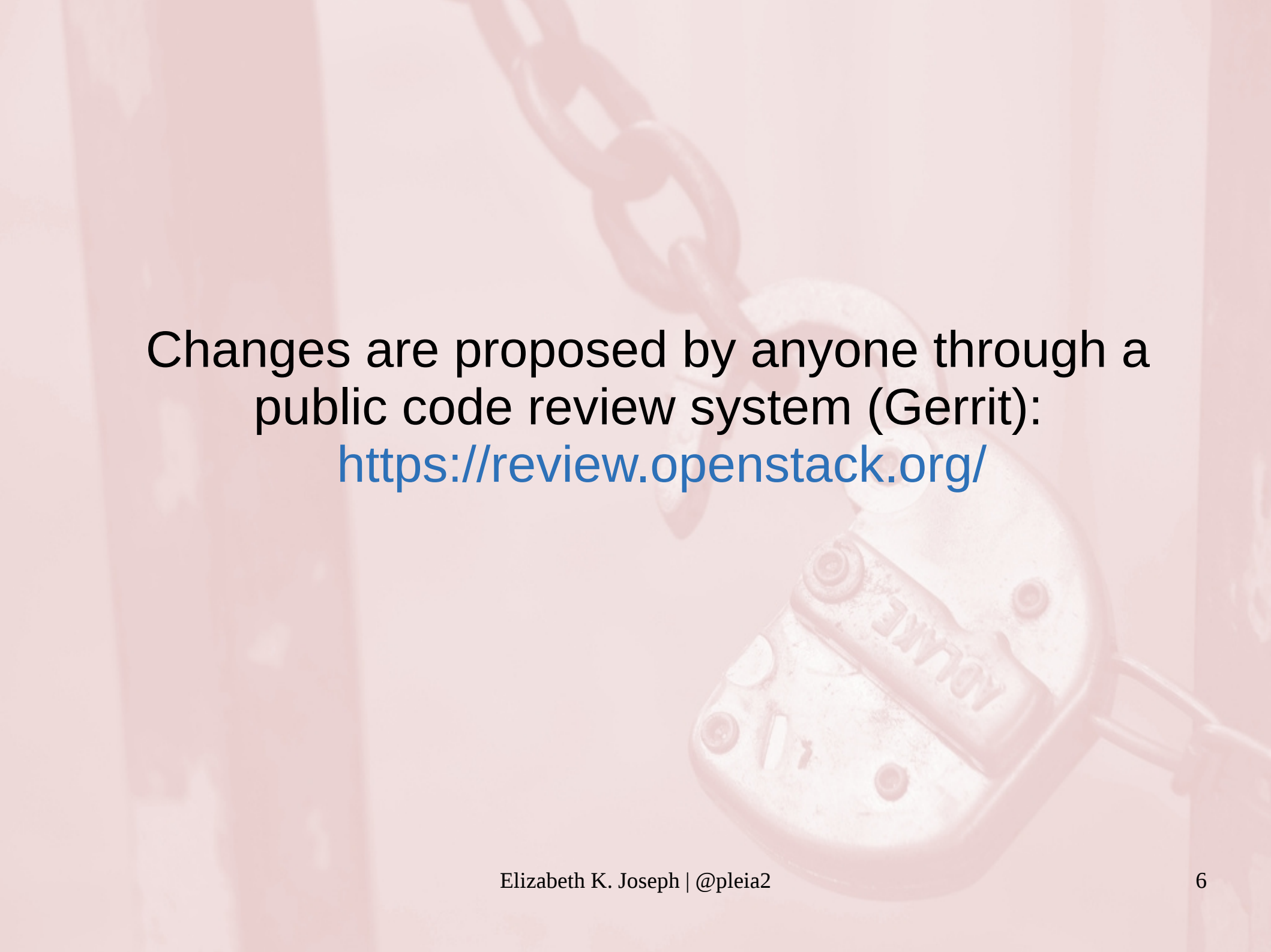
The background of the slide is a faded, light-colored image of a metal padlock and chain. The padlock is the central focus, with the word 'MILNER' embossed on its body. It is attached to a heavy metal chain. The overall tone is a soft, warm pinkish-red.

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>



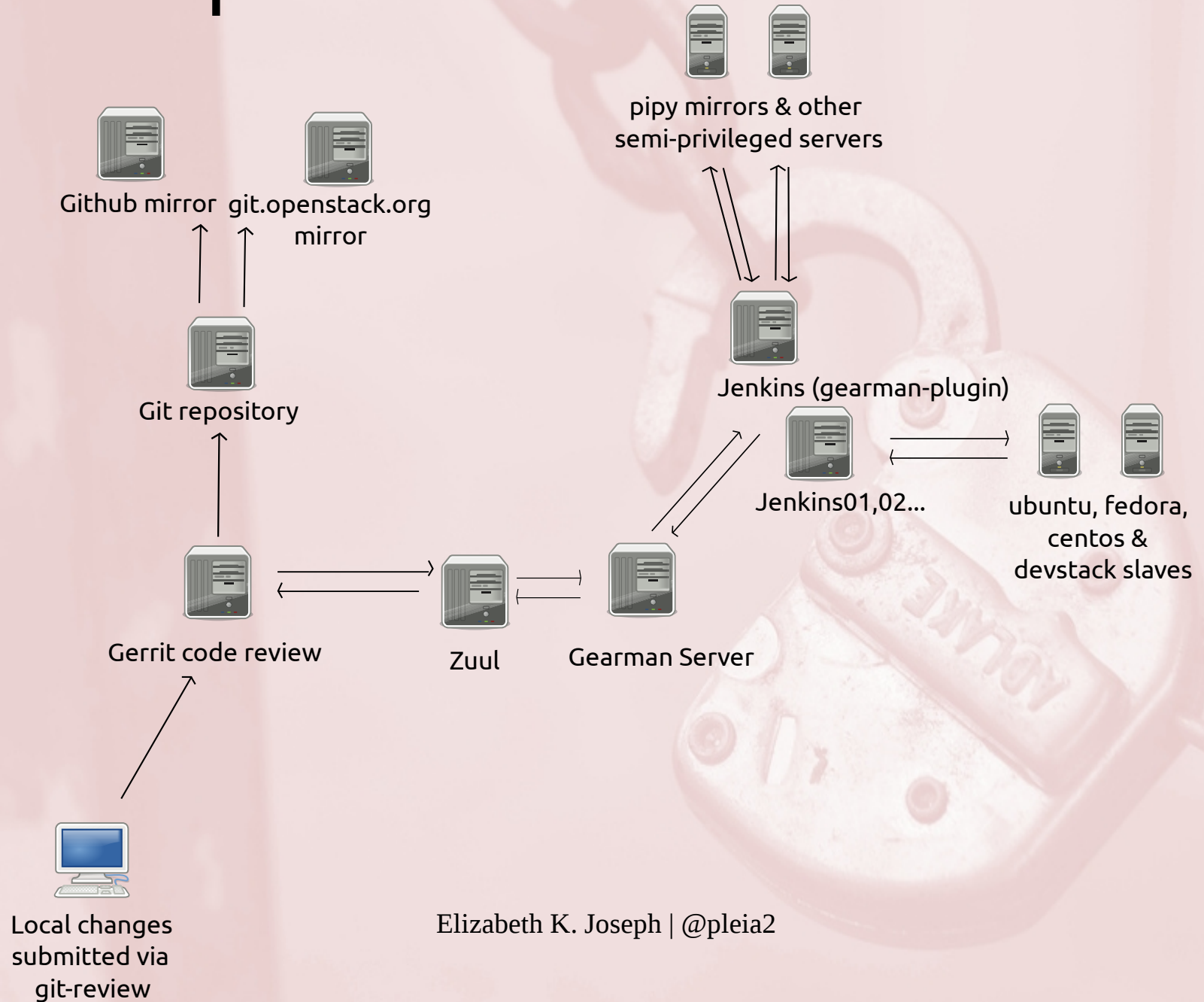
Changes are proposed by anyone through a
public code review system (Gerrit):
<https://review.openstack.org/>

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




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
```

Change-Id: I1bc4adf9f7a0738426649d54b67e6aa13acffe5f 

Owner: Elizabeth K. Joseph

Project:  openstack-infra/publications

Branch: sysadmin-codereview



Topic: toolsconfigs/updates 

Uploaded: Oct 15, 2014 10:53 AM

Updated: Oct 15, 2014 10:53 AM

Submit Type: Merge if Necessary


Status: Review in Progress

★ **Commit Message** [Permalink](#)  

Update tools and review purposes.

We've begun using bashate and beaker tests on some of our projects, adding those. Also note that we use the review system for translations imports and specifications.

Change-Id: I1bc4adf9f7a0738426649d54b67e6aa13acffe5f

| Reviewer | Code-Review | Verified | Workflow |
|---|-------------|----------|----------|
| Jenkins  | | +1 | |


| | |
|---------|-----------------------|
| Jenkins | Oct 15, 2014 10:53 AM |
| noop | SUCCESS |

- Need Verified
- Need Code-Review
- Need Workflow

► **Dependencies**

Reference Version: ▼

▼ **Patch Set 1** 48516ac0b1a08626a9a2397b9c1f78a554687418 (gitweb)

| | |
|------------------|--|
| Author | Elizabeth K. Joseph <lyz@princessleia.com> Oct 15, 2014 10:50 AM |
| Committer | Elizabeth K. Joseph <lyz@princessleia.com> Oct 15, 2014 10:53 AM |
| Parent(s) | d5c6d675091b52b6808b64c716ea2bdc8a75f82c Update slides for Fossetcon |
| Download | checkout pull cherry-pick patch Anonymous HTTP SSH HTTP git fetch https://review.openstack.org/openstack-infra/publications refs/changes/22/128722/1 && git cherry-pick FETCH_HEAD  |

| | File Path | Comments | Size | Diff | Reviewed |
|---|----------------|----------|--------|------------------|-------------|
| ► | Commit Message | | | Side-by-Side | Unified |
| M | index.html | | +4, -0 | Side-by-Side | Unified |
| | | | +4, -0 | All Side-by-Side | All Unified |

←Commit Message

↑ Up to change

| Patch Set Base 1 | | Patch Set 1 | |
|---|--|--|-----|
| +10 ↑ ... skipped 83 common lines ... +10 ↓ | | +10 ↑ ... skipped 83 common lines ... +10 ↓ | |
| 84 | </div> | </div> | 84 |
| 85 | | | 85 |
| 86 | | | 86 |
| 87 | <div class="slide"> | <div class="slide"> | 87 |
| 88 | <h1>What we use it for</h1> | <h1>What we use it for</h1> | 88 |
| 89 | | | 89 |
| 90 | | | 90 |
| 91 | All core OpenStack projects | All core OpenStack projects | 91 |
| 92 | StackForge projects | StackForge projects | 92 |
| 93 | Documentation | Documentation | 93 |
| | | Translations imports | 94 |
| | | Project specifications | 95 |
| 94 | Systems Administration! | Systems Administration! | 96 |
| 95 | | | 97 |
| 96 | | | 98 |
| 97 | </div> | </div> | 99 |
| 98 | | | 100 |
| 99 | <div class="slide"> | <div class="slide"> | 101 |
| 100 | <h1>What we do</h1> | <h1>What we do</h1> | 102 |
| 101 | | | 103 |
| 102 | <div align="center"></div> | <div align="center"></div> | 104 |
| 103 | | | 105 |
| ... skipped 28 common lines ... | | ... skipped 28 common lines ... | |
| 132 | Anyone can write code reviews | Anyone can write code reviews | 134 |
| 133 | | | 135 |
| 134 | | | 136 |
| 135 | </div> | </div> | 137 |
| 136 | | | 138 |
| 137 | <div class="slide"> | <div class="slide"> | 139 |
| 138 | <h1>What Systems Administrators Check</h1> | <h1>What Systems Administrators Check</h1> | 140 |
| 139 | | | 141 |
| 140 | | | 142 |
| 141 | flake8 (pep 8 and pyflakes) | flake8 (pep 8 and pyflakes) | 143 |
| | | bashate | 144 |
| 142 | puppet parser validate | puppet parser validate | 145 |
| 143 | puppet-lint | puppet-lint | 146 |
| | | Beaker | 147 |
| 144 | XML | XML | 148 |
| 145 | Alphabetized project files | Alphabetized project files | 149 |
| 146 | | | 150 |
| 147 | | | 151 |
| 148 | </div> | </div> | 152 |
| 149 | | | 153 |
| 150 | <div class="slide"> | <div class="slide"> | 154 |
| 151 | <h1>Peer Review</h1> | <h1>Peer Review</h1> | 155 |
| 152 | | | 156 |
| 153 | | | 157 |
| +10 ↑ ... skipped 65 common lines ... +10 ↓ | | +10 ↑ ... skipped 65 common lines ... +10 ↓ | |

←Commit Message

↑ Up to change

What uses this CI system

All core OpenStack projects
StackForge projects
Documentation
Translations imports
Project specifications
Systems Administration

A faded background image of a metal padlock and chain. The padlock is silver and has the word 'KOLLMER' embossed on it. It is attached to a chain. The background is a light, warm color.

What we do as OpenStack Infrastructure Systems Administrators





Elizabeth K. Joseph | @pleia2

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

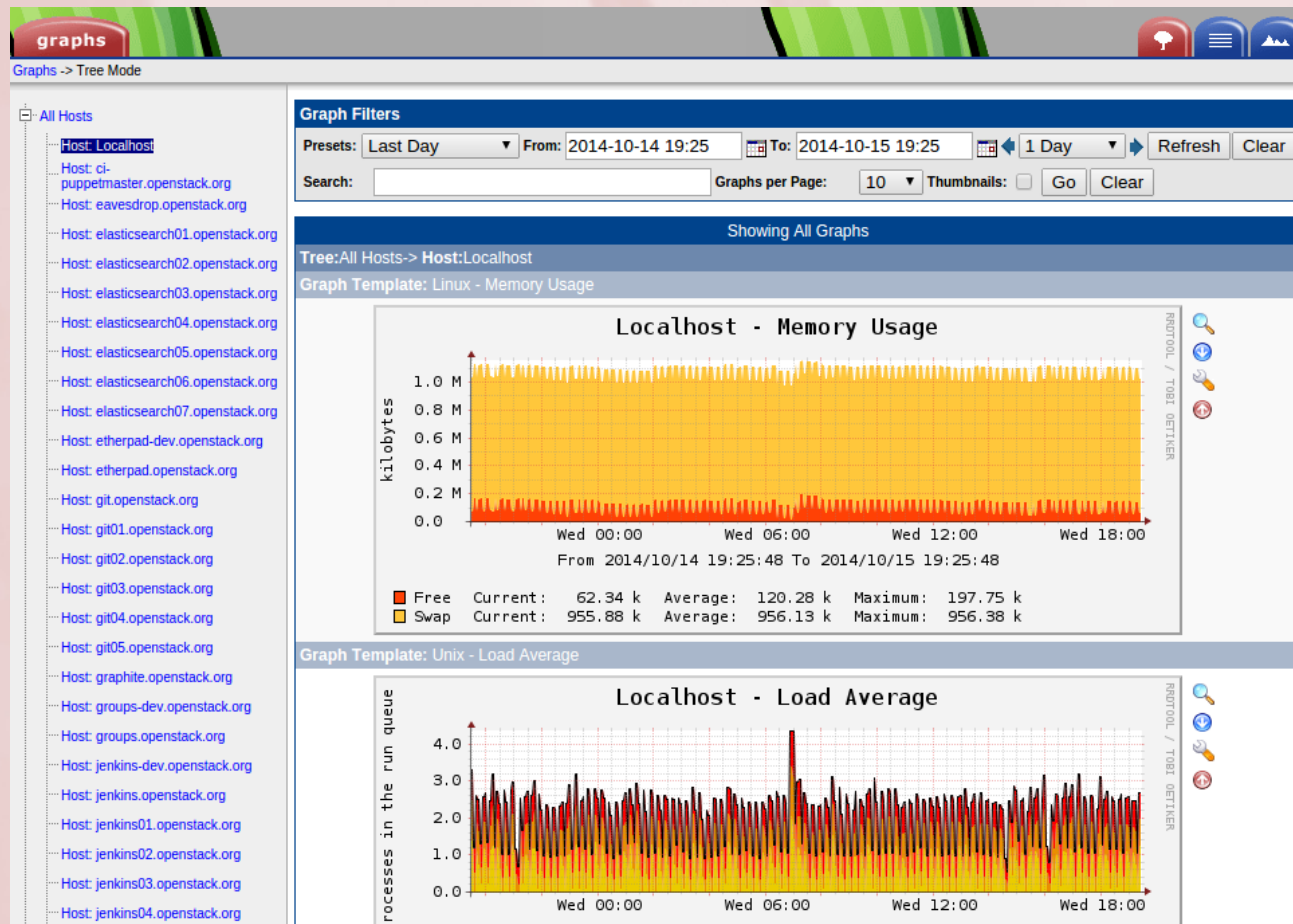
Code review benefits: Peer review

- 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

A faded, light-colored background image featuring a metal padlock and a chain. The padlock is the central focus, with the word 'MILNER' embossed on its body. It is attached to a heavy metal chain. The overall tone is soft and monochromatic, with a light pinkish-red hue.

How do you know what's going on with your servers?

Cacti: <http://cacti.openstack.org/>



Puppetboard: <http://puppetboard.openstack.org/>

The screenshot displays the Puppetboard Overview page. At the top, there is a navigation bar with tabs for PUPPETBOARD, OVERVIEW, NODES, FACTS, REPORTS, METRICS, and QUERY. The main content area features six summary cards: 1 node with status failed, 7 nodes with status changed, 3 nodes unreported in the last 0.5 hours, 79 Population, 13791 Resources managed, and 175 Avg. resources/node. Below these is a section titled 'Nodes status detail (11)' with a table listing nodes and their status. The table has columns for Status, Hostname, and a 'Latest Report' button. The status column uses color-coded boxes: unreported (grey), failed (red), and changed (green). The Hostname column lists nodes like fungi-test.openstack.org, openstackid.org, groups.openstack.org, jenkins-dev.openstack.org, cacti.openstack.org, logstash.openstack.org, groups-dev.openstack.org, and jenkins03.openstack.org. The 'Latest Report' column contains buttons for 'No Report' or 'Latest Report'. At the bottom, there is a copyright notice for 2013 Daniele Sluijters and a note 'Live from PuppetDB.'

PUPPETBOARD OVERVIEW NODES FACTS REPORTS METRICS QUERY

1 node
with status failed

7 nodes
with status changed

3 nodes
unreported in the last 0.5 hours

79
Population

13791
Resources managed

175
Avg. resources/node

Nodes status detail (11)

| Status | Hostnames | Latest Report |
|------------|---------------------------------|---------------|
| unreported | None fungi-test.openstack.org | No Report |
| unreported | 6d 19h 16m openstackid.org | Latest Report |
| unreported | 1d 23h 46m groups.openstack.org | Latest Report |
| failed | 1 0 jenkins-dev.openstack.org | Latest Report |
| changed | 0 68 cacti.openstack.org | Latest Report |
| changed | 0 33 logstash.openstack.org | Latest Report |
| changed | 0 1 groups-dev.openstack.org | Latest Report |
| changed | 0 1 jenkins03.openstack.org | Latest Report |

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

The screenshot shows the OpenStack Project Infrastructure documentation page. At the top left is the OpenStack logo with the text 'openstack CLOUD SOFTWARE'. To the right of the logo is a navigation menu with links for Home, Wiki, Gerrit, Jenkins, Logstash, Etherpad, Paste, Planet, and Mailman. Below the navigation menu is a sidebar on the left containing sections: Table Of Contents, OpenStack Project Infrastructure Indices and tables, Next topic (Infrastructure Project), This Page, Show Source, and Quick search (with a search input field and a 'Go' button). The main content area has the title 'OpenStack Project Infrastructure' and a paragraph explaining that the documentation covers installation and maintenance for developers. Below this is a 'Contents:' section with a bulleted list of topics. To the right of the list is a yellow box titled 'HOWTOs' containing three links: 'Third Party Testing', 'StackForge', and 'Running your own CI infrastructure'.

openstack
CLOUD SOFTWARE

Home Wiki Gerrit Jenkins Logstash Etherpad Paste Planet Mailman

Table Of Contents

OpenStack Project Infrastructure Indices and tables

Next topic

Infrastructure Project

This Page

Show Source

Quick search

Go

Enter search terms or a module, class or function name.

OpenStack Project Infrastructure

This documentation covers the installation and maintenance of the project infrastructure used by OpenStack. It may be of interest to people who may want to help develop this infrastructure or integrate their tools into it. Some instructions may be useful to other projects that want to set up similar infrastructure systems for their developers.

OpenStack developers or users do not need to read this documentation. Instead, see <http://wiki.openstack.org/> to learn how contribute to or use OpenStack.

Contents:

- Infrastructure Project
 - Scope
 - Contributing
 - Team
 - Bugs
- Test infrastructure Requirements
 - Overview
 - Test run styles
- System Administration
 - Making a Change in Puppet
 - Adding a New Server
 - SSH Access
 - GitHub Access
- Root only information
 - Backups
 - Launching New Servers
 - Cinder Volume Management
- Major Systems
 - Cacti
 - Gerrit
 - Jenkins
 - Zuul
 - Jenkins Job Builder

HOWTOs

- [Third Party Testing](#)
- [StackForge](#)
- [Running your own CI infrastructure](#)

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
(viewing 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"

<https://www.flickr.com/photos/trippchicago/3769904793>

The whole OpenStack Infrastructure team for the extraordinary work being done!