



Open Source Continuous Integration System

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OpenStack Infrastructure

Maintains developer infrastructure for the OpenStack project

- Runs a fully open source Continuous Integration (CI) system for OpenStack commits
- Elizabeth has worked on it for nearly 3 years, is a core/root member of the team
- <http://docs.openstack.org/infra/>

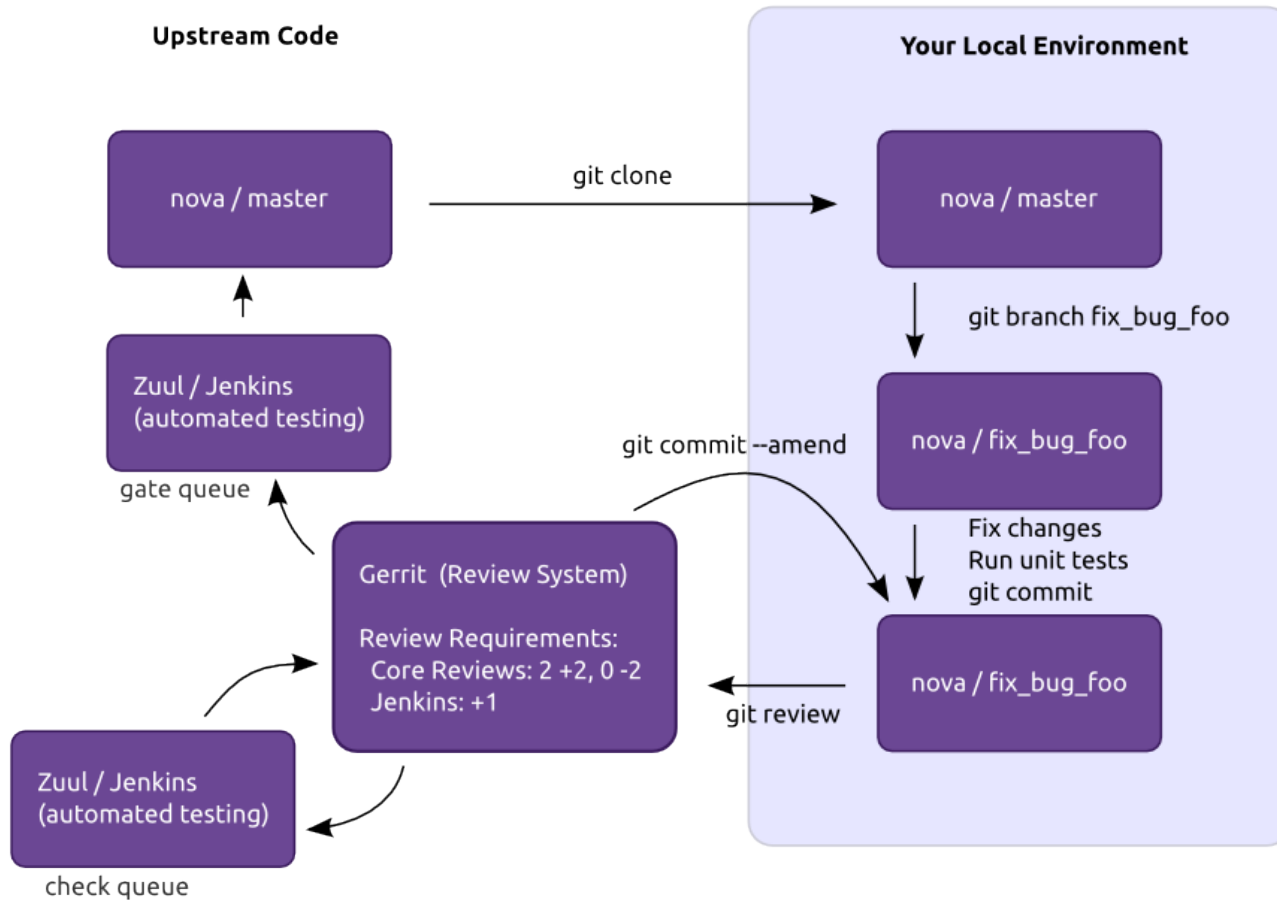
Continuous Integration

- “The practice, in software engineering, of merging all developer working copies to a shared mainline several times a day... In addition to automated unit tests, organisations using CI typically use a build server to implement continuous processes of applying quality control in general” Source:
https://en.wikipedia.org/wiki/Continuous_integration
- Jenkins
- Travis CI, CircleCI

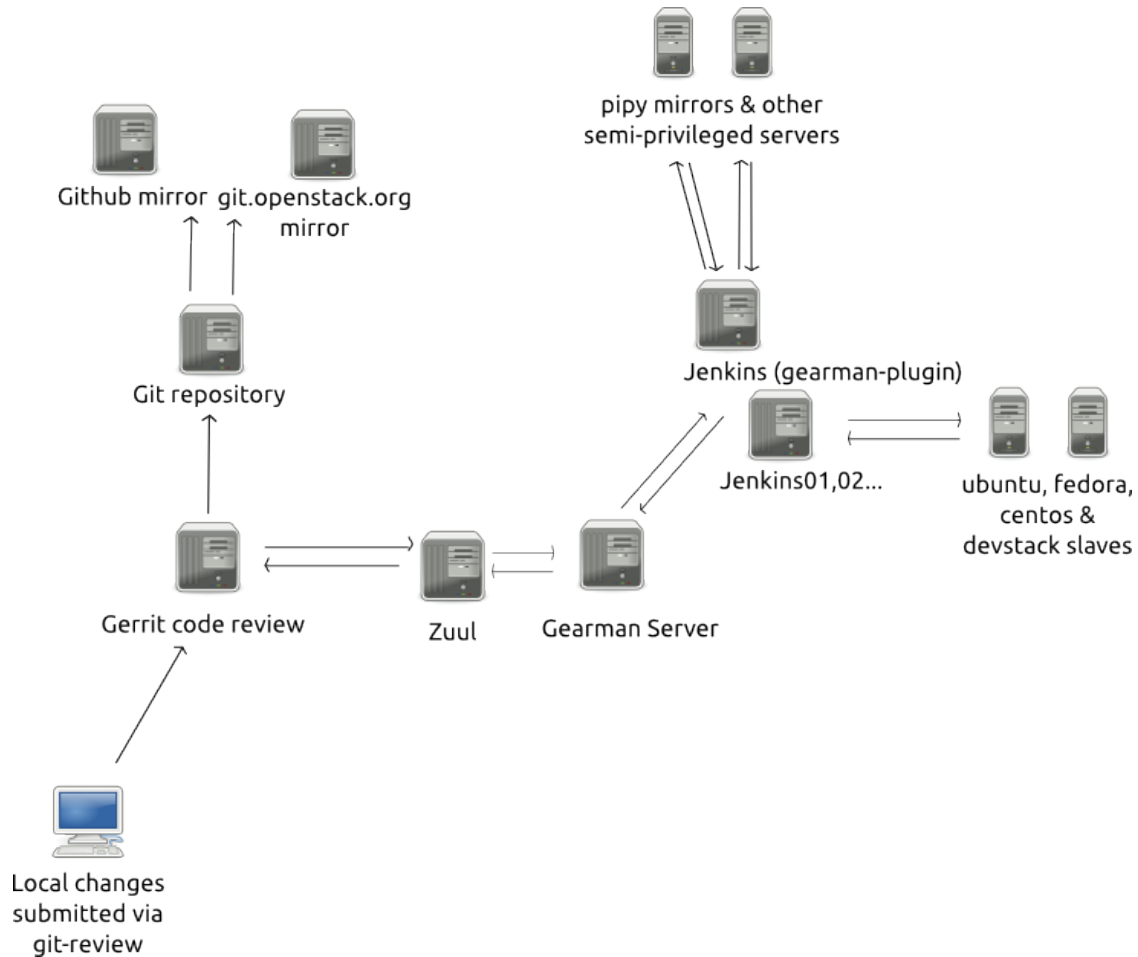
OpenStack

- Commitment to all open source
- CI is essential for a complex system that has a diverse development team

Developer work flow



Infrastructure set up



Git

- Revision control
- HAProxy, cgit and git-daemon for 8 node git cluster accessible via git.openstack.org
- Mirror to GitHub (not open source)

Gerrit

- Code review
<https://www.gerritcodereview.com/>
- Gerrit server at
<https://review.openstack.org>
- Open to everyone to propose code*, view proposed changes and do code reviews

* OpenStack requires a Contributor License Agreement to be signed in order to submit code to the project

Zuul

- Project gating, docs:
<http://docs.openstack.org/infra/zuul/>
- Manages change dependencies
- Passes jobs to testing systems
- View jobs in action at
<http://status.openstack.org/zuul/>

Change queue: **openstack/ironic**

● openstack/oslo.serialization 0 min
229894,2 1 hr 14 min

Change queue: **openstack/oslo.utils**

● openstack/oslo.utils 4 min
229897,2 1 hr 13 min

Change queue: **openstack/oslo.vmware**

● openstack/oslo.vmware 0 min
229900,2 1 hr 11 min

Change queue: **openstack/oslo.cache**

● openstack/oslo.cache 22 min
232764,2 1 hr 9 min

Change queue: **openstack/oslo.db**

● openstack/oslo.db 0 min
229886,2 1 hr 6 min

Change queue: **integrated**

● openstack/nova 12 min
230227,5 1 hr 6 min

Change queue: **integrated**

● openstack/cinder 15 min
232611,2 1 hr 3 min

Change queue: **openstack/neutron**

● openstack/neutron 34 min
228582,15 58 min

Change queue: **openstack/neutron**

● openstack/neutron 42 min
228582,15 58 min

● openstack/neutron 42 min
229561,18 58 min

● openstack/heat 2 min
232675,1 1 hr 58 min

● openstack/neutron 26 min
232519,2 1 hr 40 min

● openstack/requirements 41 min
230394,4 1 hr 29 min

● openstack/ironic 1 hr 1 min
232157,1 1 hr 21 min

● openstack/neutron unknown
230998,2 1 hr 10 min

● openstack/neutron unknown
231011,6 1 hr 8 min

● openstack/neutron unknown
231044,2 1 hr 1 min

Change queue: **openstack/automaton**

● openstack/automaton 29 min
230837,1 51 min

Change queue: **openstack/bifrost**

● openstack/bifrost 5 min
228195,4 11 min

Change queue: **openstack/futurist**

● openstack/futurist 0 min
230839,1 51 min

Change queue: **openstack/glance_store**

● openstack/glance_store 51 min
220320,8 11 min

Change queue: **openstack/neutron**

● openstack/neutron unknown
e739ba3 11 min

Change queue: **openstack/ceilometer**

● openstack/ceilometer 4 min
48709f2 11 min

Change queue: **openstack/ceilometer**

● openstack/ceilometer 3 min
6fe1319 11 min

Change queue: **openstack/cinder**

● openstack/cinder 5 min
a5e8494 11 min

Change queue: **openstack/cinder**

● openstack/cinder 3 min
9bc01e2 11 min

Change queue: **openstack/cinder**

● openstack/cinder unknown
fad10de 11 min

Change queue: **openstack/cinder**

● openstack/cinder unknown
ebf0e94 11 min

Change queue: **openstack/neutron**

● openstack/neutron unknown
aa6ec7b 11 min

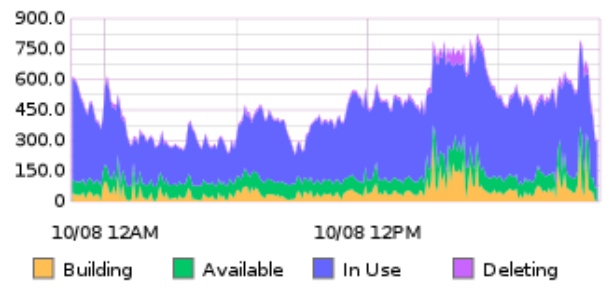
Change queue: **openstack/heat**

● openstack/heat unknown
a4aafba 11 min

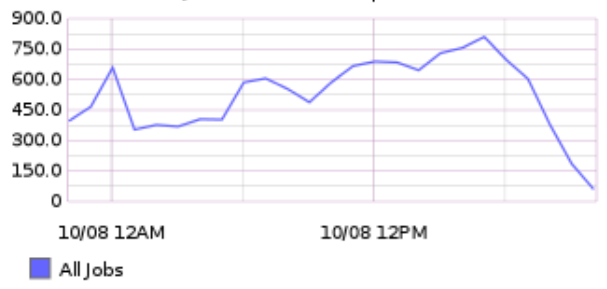
Change queue: **openstack/neutron**

Job Stats

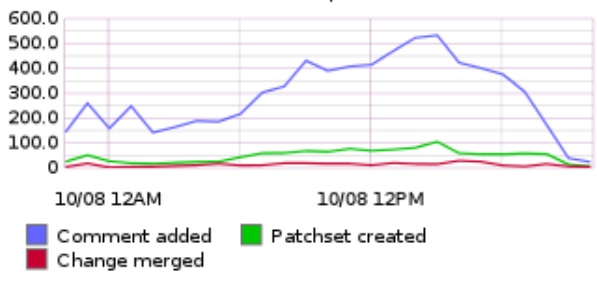
Test Nodes



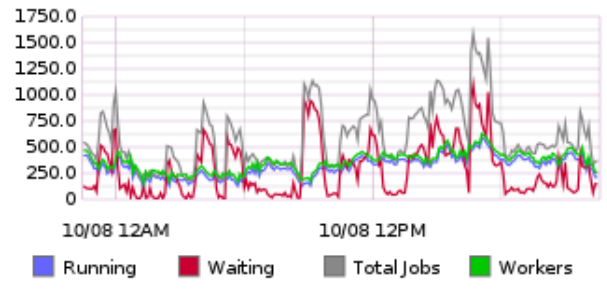
Zuul Jobs Launched (per Hour)



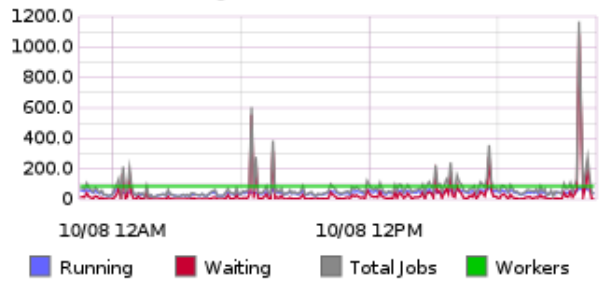
Gerrit Events (per Hour)



Zuul Job Queue



Logstash Job Queue



Gearman

- Application framework to farm out work to other machines or processes
<http://gearman.org/>
- Hands off jobs to the Jenkins server that meets the appropriate requirements

Jenkins

- Extensible, open source continuous integration server,
<https://jenkins-ci.org/>
- Fleet of 8 Jenkins servers

Jenkins Job Builder

- Takes simple descriptions of Jenkins jobs in YAML or JSON format and uses them to configure Jenkins, docs: <http://docs.openstack.org/infra/jenkins-job-builder/>
- Easy to manage submissions from developers in revision control

Nodepool

- A system for launching single-use test nodes, docs:
<http://docs.openstack.org/infra/nodepool/>
- Manages 800+ servers across multiple clouds, public and private

ELK stack

- Elasticsearch, Logstash and Kibana
- Kibana interface at <http://logstash.openstack.org/>
- Search for failures, run automated scripts to track failures (elastic-recheck)

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