

# OpenStack Infrastructure tools you will want to borrow

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openstack™

# Crazy loads every day

1000 patchsets are proposed

7500 Gerrit comments and votes posted

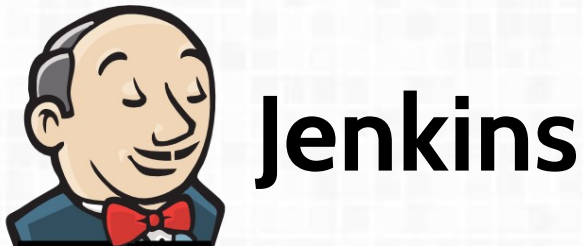
16000 test environments spawn

250 changes merged

# What we use



git



# Fully automated & open source

Everything deployed by Puppet

Only open source tools

Our puppet manifests are open source

Our config files are open source



# planet.ini

Reviewed & next

exploreshaifali.png

Up to change

| Patch Set Base 1   | common lines ...    | Patch Set 1   |
|--|---------------------|---|
| 934 [http://en.roozbehshafiee.com/category/openstack/feed] | +10 ... skipped 933 | [http://en.roozbehshafiee.com/category/openstack/feed]          |
| 935 name = Roozbeh Shafiee                                 |                     | name = Roozbeh Shafiee  |
| 936 nick = RoozbehShafiee                                  |                     | nick = RoozbehShafiee   |
| 937 face = roozbehshafiee.png                              |                     | face = roozbehshafiee.png                                       |
| 938  |                     |   |
| 939 [https://mcwhirter.com.au/tags/OpenStack/index.atom]   |                     | [https://mcwhirter.com.au/tags/OpenStack/index.atom]            |
| 940 name = Craige McWhirter                                |                     | name = Craige McWhirter   |
| 941 nick = craige  |                     | nick = craige   |
| 942 face = craige.jpg                                      |                     | face = craige.jpg   |
| 943  |                     |   |
| 944 [https://arunsag.wordpress.com/tag/openstack/feed/]    |                     | [https://arunsag.wordpress.com/tag/openstack/feed/]             |
| 945 name = Arun S A G                                      |                     | name = Arun S A G   |
| 946 nick = zer0c00l  |                     | nick = zer0c00l   |
| 947  |                     |   |
| 948 [http://blog.briancurtin.com/categories/openstack.xml] |                     | [http://blog.briancurtin.com/categories/openstack.xml]          |
| 949 name = Brian Curtin                                    |                     | name = Brian Curtin   |
| 950 face = briancurtin.png                                 |                     | face = briancurtin.png  |
| 951 nick = briancurtin                                     |                     | nick = briancurtin  |
| 952 faceheight = 90  |                     | faceheight = 90   |
| 953 facewidth = 100  |                     | facewidth = 100   |
| 954  |                     |   |
| 955 [http://mkissam.tumblr.com/tagged/openstack/rss]       |                     | [http://mkissam.tumblr.com/tagged/openstack/rss]                |
| 956 name = Marton Kiss                                     |                     | name = Marton Kiss  |
| 957 nick = marton-kiss                                     |                     | nick = marton-kiss  |
| 958 face = marton-kiss.jpg                                 |                     | face = marton-kiss.jpg  |
|  |                     | [http://shaifaliagrawal.wordpress.com/category/openstack/feed/] |
|  |                     | name = Shaifali Agrawal   |
|  |                     | face = exploreshaifali.png                                      |
|  |                     | nick = exploreshaifali  |

exploreshaifali.png

Up to change

Reviewed & next



## index : openstack-infra/puppet-planet

Puppet module for Planet

master

switch

[summary](#) [refs](#) [log](#) **[tree](#)** [commit](#) [diff](#) [stats](#)

log msg

search

path: [root/manifests/site.pp](#)blob: 4a749634dcf451028250e6a13ab29ae1b49e0f5d ([plain](#))

```
1 define planet::site(  
2     $git_url,  
3     $vhost_name = "planet.${name}.org"  
4 ) {  
5     include apache  
6  
7     apache::vhost { $vhost_name:  
8         docroot => "/srv/planet/${name}",  
9         port    => 80,  
10        priority => '50',  
11        require  => File['/srv/planet'],  
12    }  
13  
14    vcsrepo { "/var/lib/planet/${name}":  
15        ensure => present,  
16        provider => git,  
17        require => File['/var/lib/planet'],  
18        source  => $git_url,  
19    }  
20  
21    cron { "update_planet_${name}":  
22        command => "date >> /var/log/planet/${name}.log && cd /var/lib/planet/${name} && git pull -q --ff-only && planet /var/lib/planet/${name}.  
23        minute  => '*/*',  
24        user    => 'root',  
25    }  
26 }  
27  
28 # vim:sw=2:ts=2:expandtab:textwidth=79
```





# Zuul: a scalable gate system

Only merge changes if tests pass

Receives events about proposed changes

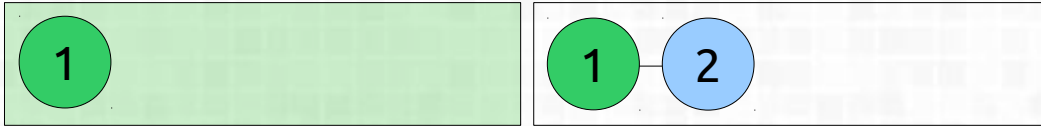
Triggers tests and reports back

Handles cross-project dependencies

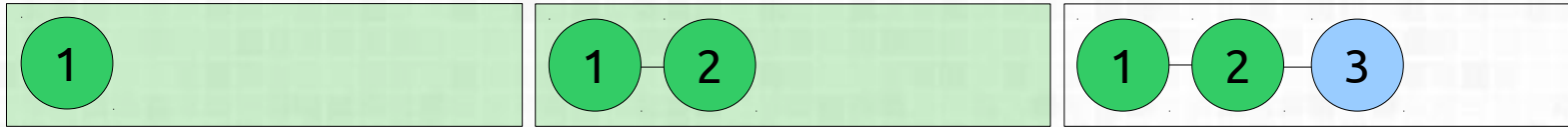
# Serial gating

1

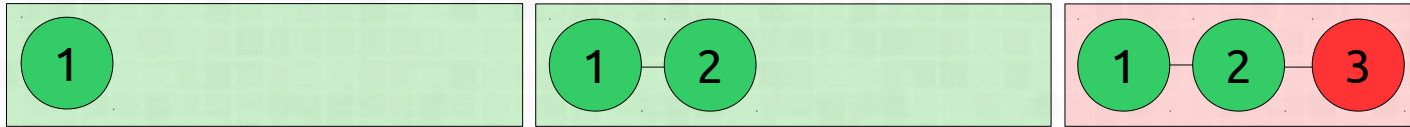
# Serial gating



# Serial gating



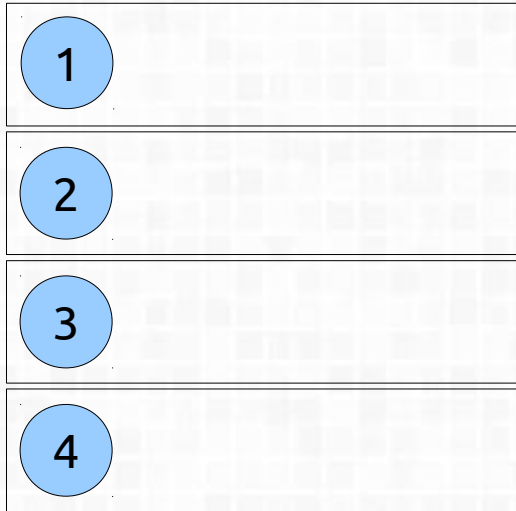
# Serial gating



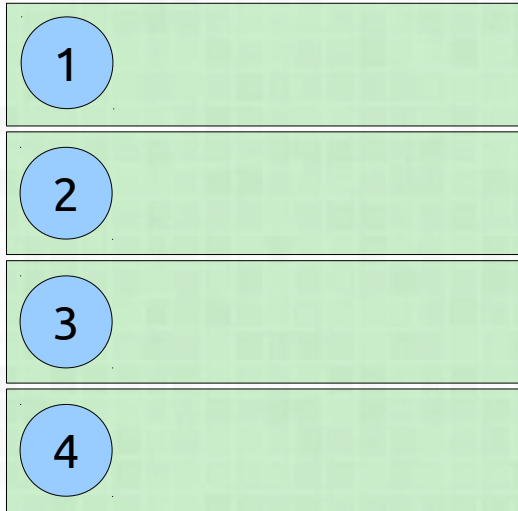
# Serial gating



# Parallel gating



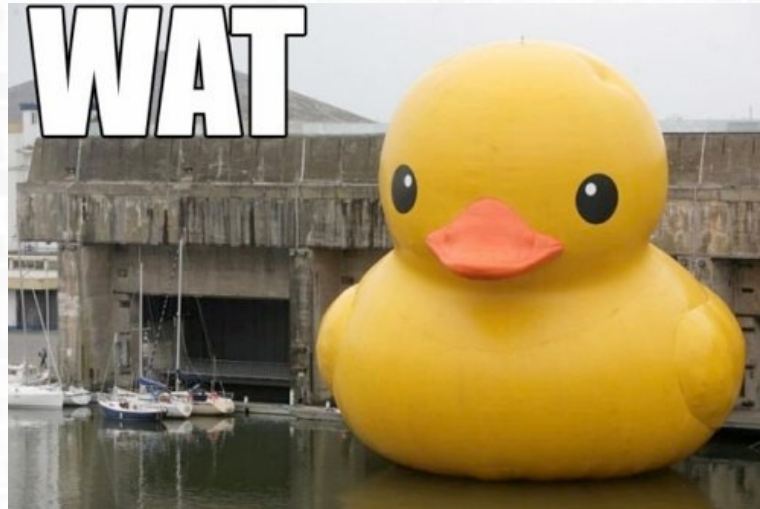
# Parallel gating



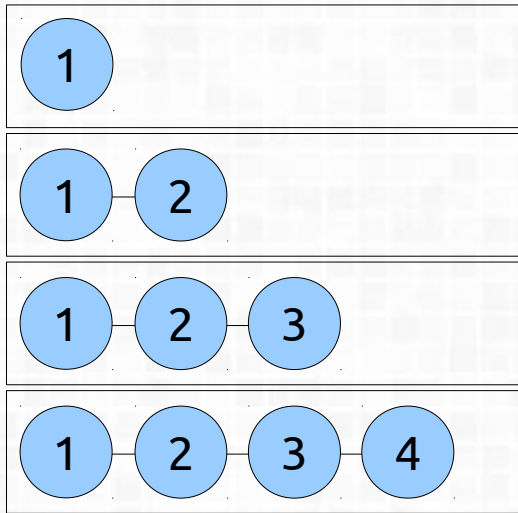


# Parallel gating

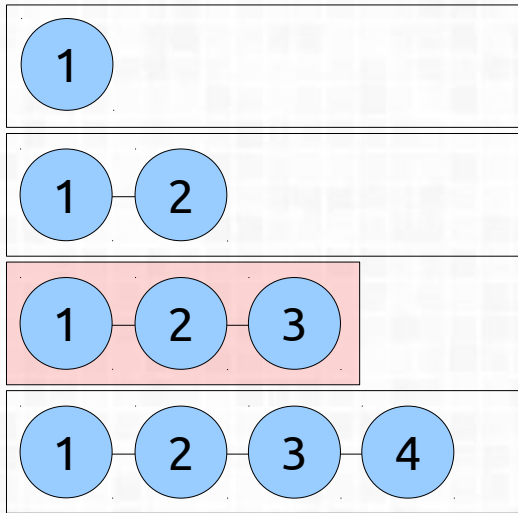
|   |  |
|---|--|
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |



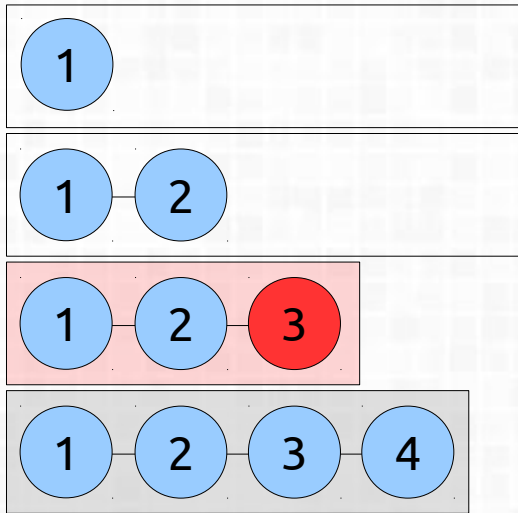
# Speculative gating



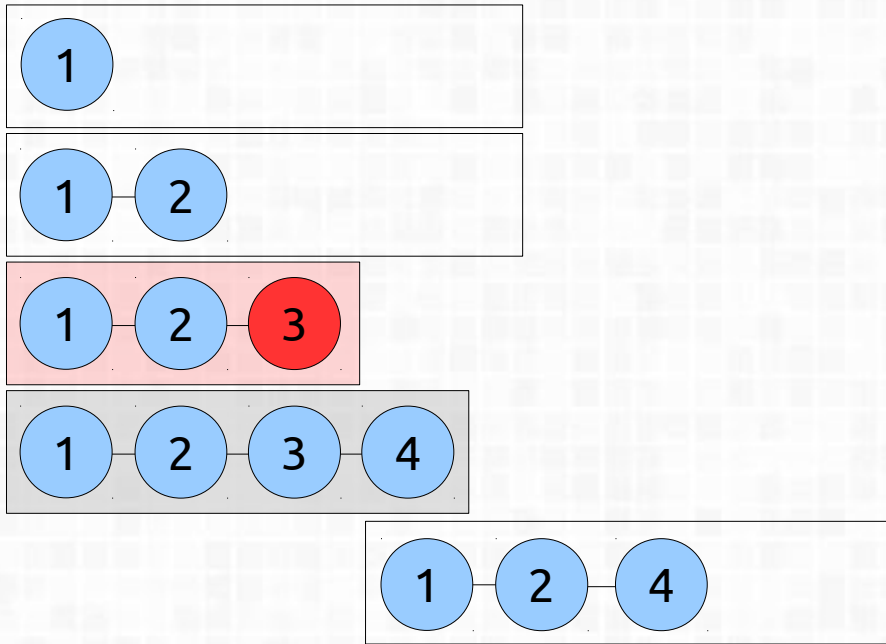
# Speculative gating



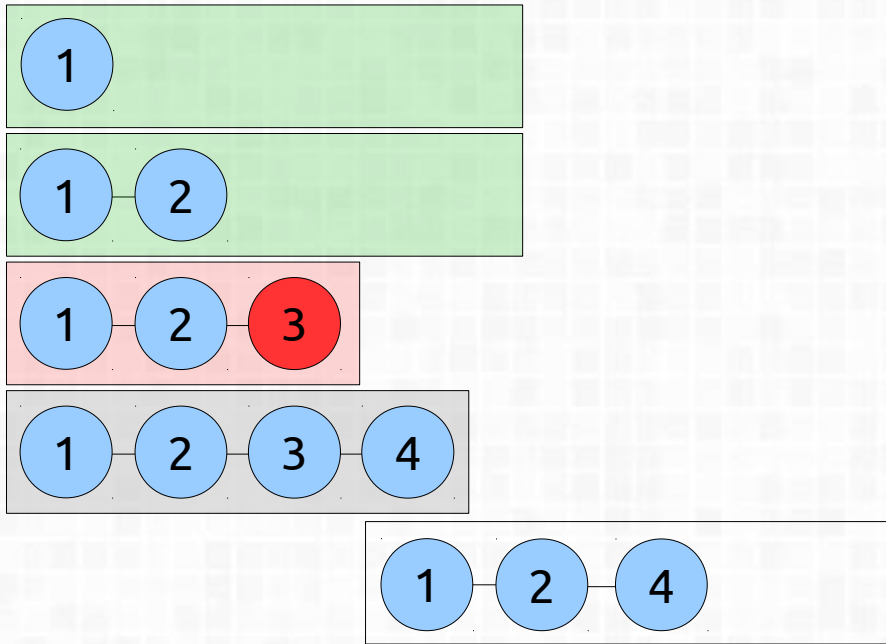
# Speculative gating



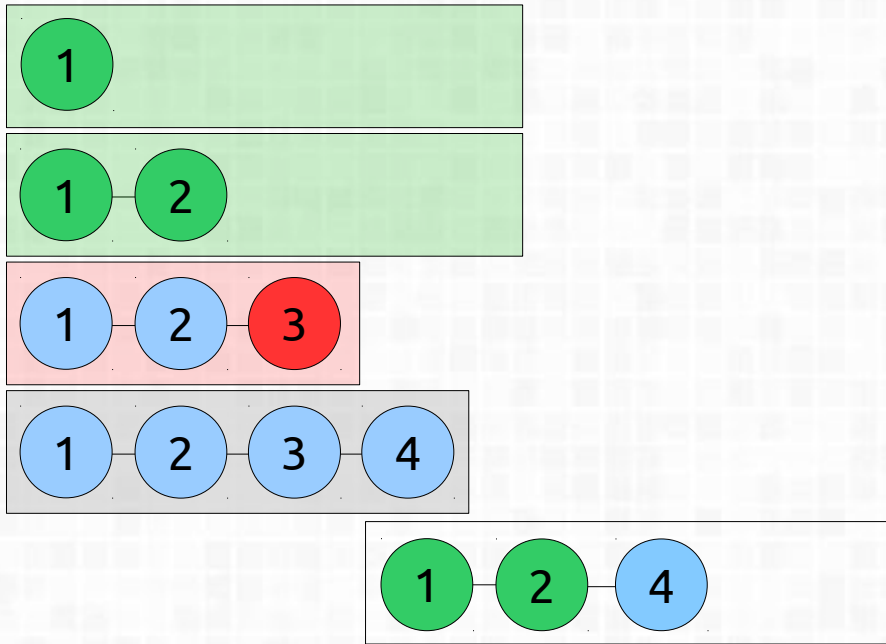
# Speculative gating



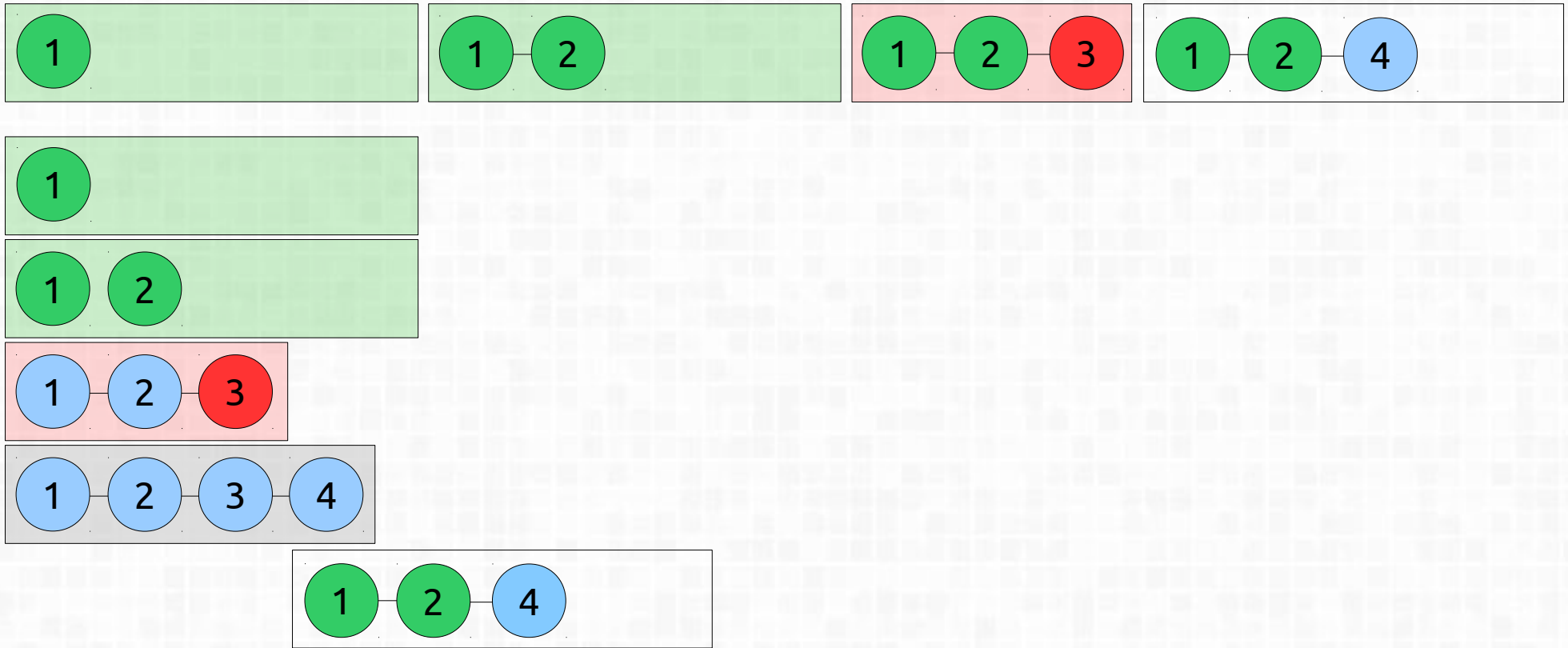
# Speculative gating



# Speculative gating



# Speculative vs. Serial gating





# Zuul Speculative Gating

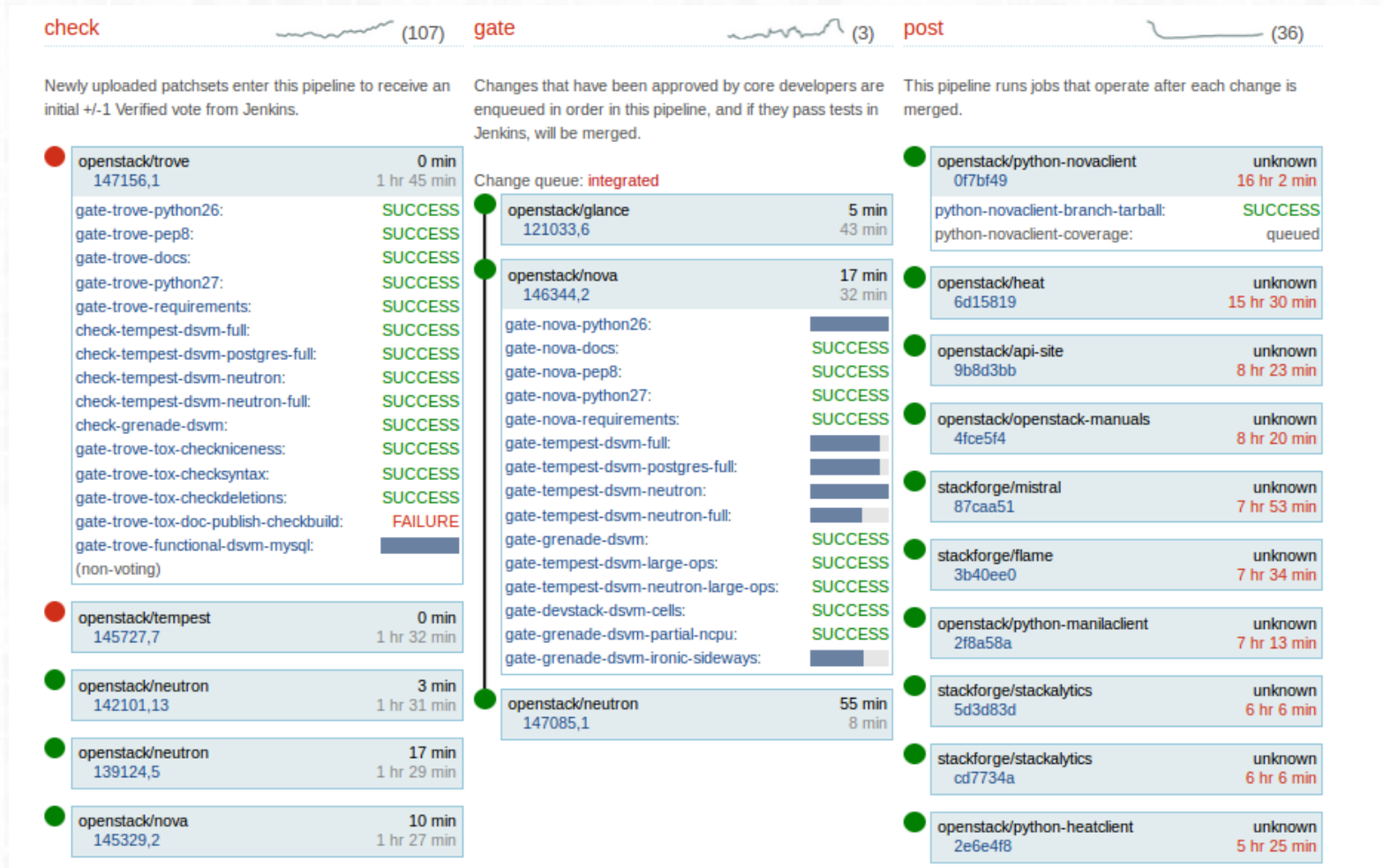
Strict gating

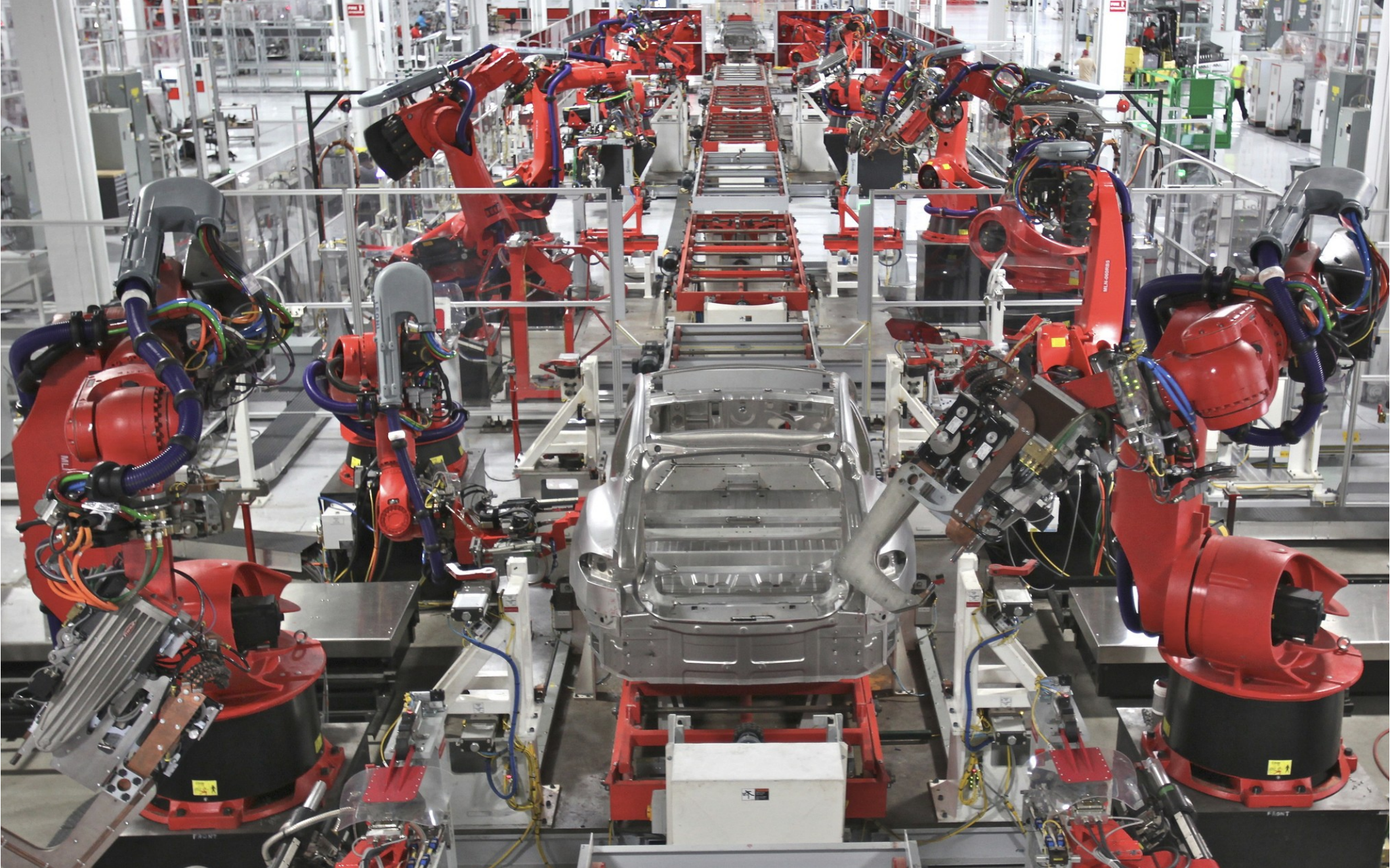
Optimize for speed, not resources

At best, as fast as parallel gating

At worse, as slow as serial gating

# Visualizing Zuul





# Jenkins-job-builder

Makes handling thousands of jobs easier

YAML descriptions converted to XML jobs

New jobs are sent to Jenkins using the API

# Macros and job descriptions

```
- job:
  name: myproject1-docs
  node: bare-trusty

  triggers:
  - zuul

  builders:
  - git-prep
  - docs

  publishers:
  - scp:
    site: 'scp-server'
    files:
    - target: 'dir/ectory'
      source: 'build/html/foo'
      keep-hierarchy: true
  - console-log
```

```
- builder:
  name: git-prep
  builders:
  - shell: "/slave_scripts/git-prep.sh"

- builder:
  name: docs
  builders:
  - shell: "/slave_scripts/run-docs.sh"

- publisher:
  name: console-log
  publishers:
  - scp:
    site: 'scp-server'
    files:
    - target: '$JOB_NAME/$BUILD_NUMBER'
      copy-console: true
      copy-after-failure: true
```

# Job templates

- job-template:
  - name: '{name}-docs'
  - node: '{node}'
- triggers:
  - zuul
- builders:
  - git-prep
  - docs
- publishers:
  - scp:
    - site: 'scp-server'
    - files:
      - target: 'dir/ectory'
      - source: 'build/html/foo'
      - keep-hierarchy: true
  - console-log
- project:
  - name: myproject1
  - node: bare-trusty
- jobs:
  - {name}-docs
- project:
  - name: myproject2
  - node: bare-centos6
- jobs:
  - {name}-docs

# Jeepyb

A collection of tools to:

- manage Gerrit projects & groups easily
- integrate Gerrit with GitHub, Launchpad

# Describe your Gerrit projects

```
- project: myorg/myproject1  
  description: Best project ever.  
  remote: git://github.com/ttx/proj.git  
  use-storyboard: true
```

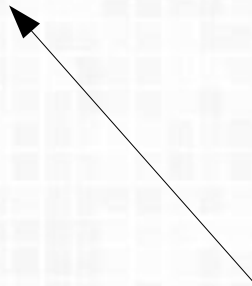
```
- project: myorg/project2  
  description: Another cool project.  
  acl-config: /path/to/project2.acl
```

```
[access "refs/heads/*"]  
label-Code-Review = -2..+2 group proj2-core  
label-Workflow = -1..+1 group proj2-core
```

```
[access "refs/heads/proposed/*"]  
label-Code-Review = -2..+2 group proj2-lead  
label-Workflow = -1..+1 group proj2-lead
```

```
[receive]  
requireChangeId = true
```

```
[submit]  
mergeContent = true
```





# Jeepyb periodic tasks

## manage-projects

Creates Gerrit projects & groups, GitHub mirrors

## close-pull-requests

Closes GitHub pull requests for projects managed in Gerrit

## expire-old-reviews

Marks old Gerrit changes Abandoned

# Jeepyb commit hooks

**update-bug, update-blueprint**

Launchpad bugs & blueprint integration

**notify-impact**

Send notification based on commit message

**trivial-rebase**

Detects trivial rebase and reapplies votes



# git-review

A helper to submit changes to Gerrit

Sets up the 'gerrit' remote if missing

Rebases on master by default

Support hooks

# git-review workflow

```
ttx@mercury:~$ git clone git://git.openstack.org/openstack/nova.git
ttx@mercury:~$ cd nova
ttx@mercury:~/nova$ # Change a few files here
ttx@mercury:~/nova$ git commit -a
ttx@mercury:~/nova$ git review
remote: Processing changes: new: 1, refs: 1, done
remote:
remote: New Changes:
remote:   http://review.openstack.org/114253
remote:
To ssh://ttx@review.openstack.org:29418/openstack/nova
 * [new branch]      HEAD -> refs/publish/master/branch
```

**nova/.gitreview**

```
[gerrit]
host=review.openstack.org
port=29418
project=openstack/nova.git
defaultbranch=master
```

# Easier reviews with git-review

```
git-review -d 114584
```

downloads change 114584 for review

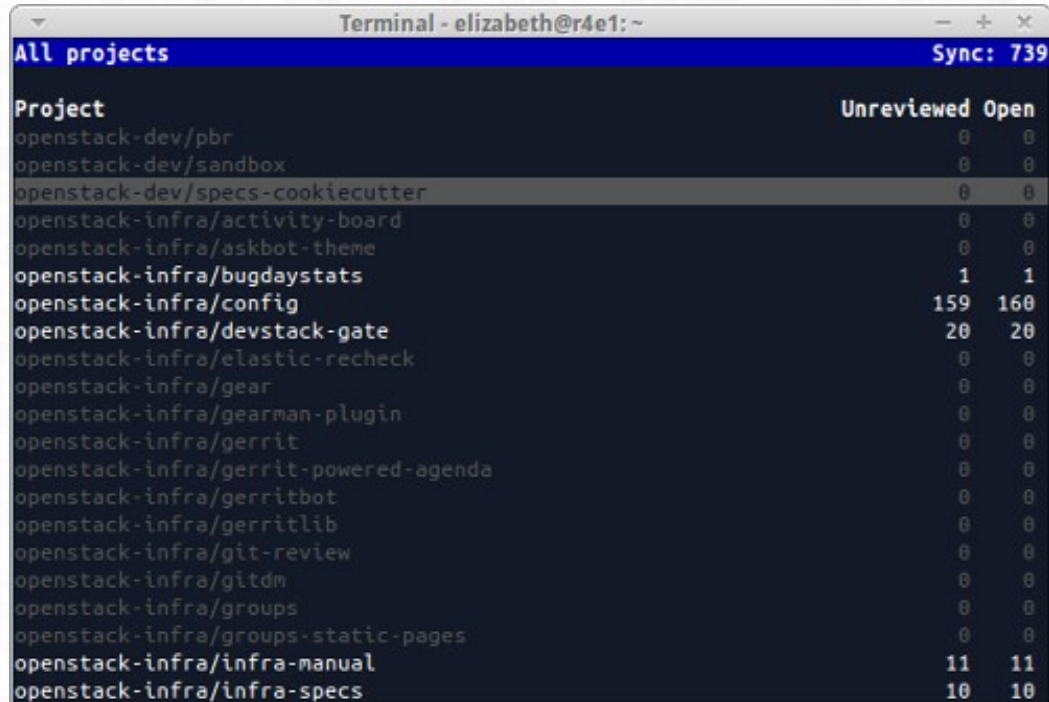
```
git-review -m 115241,4-10
```

shows changes between patchset 4 and 10

# gerty

CLI version of Gerrit web frontend  
Email/newsgroup reading workflow  
Lets your work offline

# Subscribing to projects



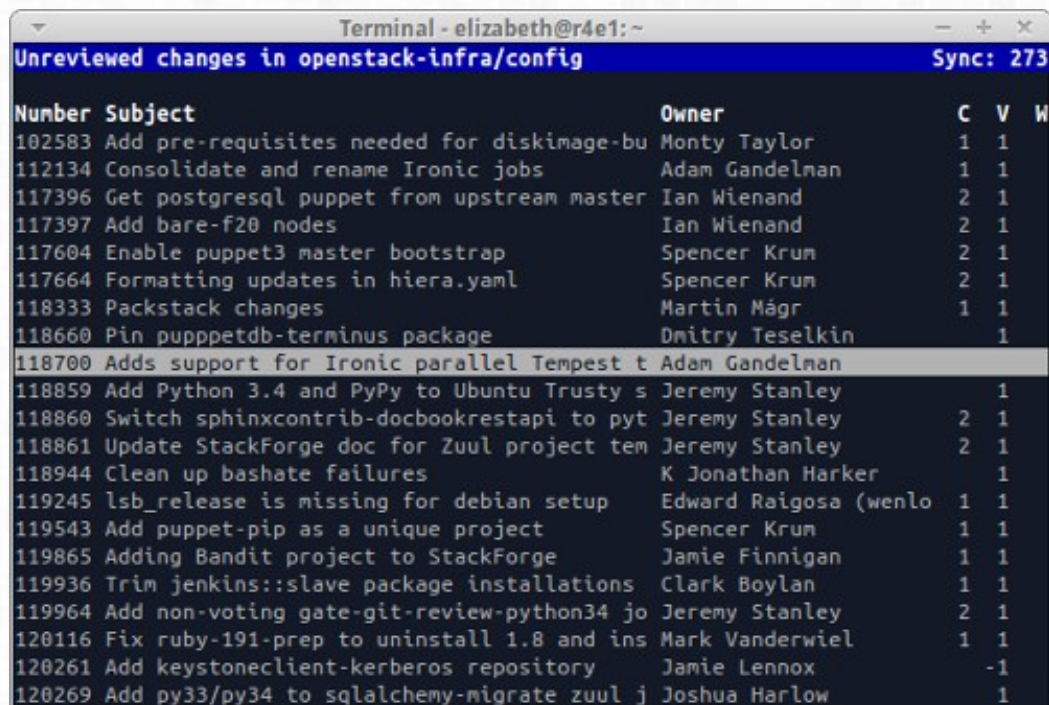
Terminal - elizabeth@r4e1: ~

All projects Sync: 739

| Project                               | Unreviewed | Open |
|---------------------------------------|------------|------|
| openstack-dev/pbr                     | 0          | 0    |
| openstack-dev/sandbox                 | 0          | 0    |
| openstack-dev/specs-cookiecutter      | 0          | 0    |
| openstack-infra/activity-board        | 0          | 0    |
| openstack-infra/askbot-theme          | 0          | 0    |
| openstack-infra/bugdaystats           | 1          | 1    |
| openstack-infra/config                | 159        | 160  |
| openstack-infra/devstack-gate         | 20         | 20   |
| openstack-infra/elastic-recheck       | 0          | 0    |
| openstack-infra/gear                  | 0          | 0    |
| openstack-infra/gearman-plugin        | 0          | 0    |
| openstack-infra/gerrit                | 0          | 0    |
| openstack-infra/gerrit-powered-agenda | 0          | 0    |
| openstack-infra/gerritbot             | 0          | 0    |
| openstack-infra/gerritlib             | 0          | 0    |
| openstack-infra/git-review            | 0          | 0    |
| openstack-infra/gitdm                 | 0          | 0    |
| openstack-infra/groups                | 0          | 0    |
| openstack-infra/groups-static-pages   | 0          | 0    |
| openstack-infra/infra-manual          | 11         | 11   |
| openstack-infra/infra-specs           | 10         | 10   |



# Listing reviews



```
Terminal - elizabeth@r4e1:~
Unreviewed changes in openstack-infra/config Sync: 273
```

| Number | Subject                                    | Owner                  | C | V | W  |
|--------|--|------------------------|---|---|----|
| 102583 | Add pre-requisites needed for diskimage-bu | Monty Taylor           | 1 | 1 |    |
| 112134 | Consolidate and rename Ironic jobs         | Adam Gandelman         | 1 | 1 |    |
| 117396 | Get postgresql puppet from upstream master | Ian Wienand            | 2 | 1 |    |
| 117397 | Add bare-f20 nodes                         | Ian Wienand            | 2 | 1 |    |
| 117604 | Enable puppet3 master bootstrap            | Spencer Krum           | 2 | 1 |    |
| 117664 | Formatting updates in hiera.yaml           | Spencer Krum           | 2 | 1 |    |
| 118333 | Packstack changes                          | Martin Mágr            | 1 | 1 |    |
| 118660 | Pin puppetdb-terminus package              | Dmitry Teselkin        |   |   | 1  |
| 118700 | Adds support for Ironic parallel Tempest t | Adam Gandelman         |   |   |    |
| 118859 | Add Python 3.4 and PyPy to Ubuntu Trusty s | Jeremy Stanley         |   |   | 1  |
| 118860 | Switch sphinxcontrib-docbookrestapi to pyt | Jeremy Stanley         | 2 | 1 |    |
| 118861 | Update StackForge doc for Zuul project tem | Jeremy Stanley         | 2 | 1 |    |
| 118944 | Clean up bashate failures                  | K Jonathan Harker      |   |   | 1  |
| 119245 | lsb_release is missing for debian setup    | Edward Raigosa (wenlo) | 1 | 1 |    |
| 119543 | Add puppet-pip as a unique project         | Spencer Krum           | 1 | 1 |    |
| 119865 | Adding Bandit project to StackForge        | Jamie Finnigan         | 1 | 1 |    |
| 119936 | Trim jenkins::slave package installations  | Clark Boylan           | 1 | 1 |    |
| 119964 | Add non-voting gate-git-review-python34 jo | Jeremy Stanley         | 2 | 1 |    |
| 120116 | Fix ruby-191-prep to uninstall 1.8 and ins | Mark Vanderwiël        | 1 | 1 |    |
| 120261 | Add keystoneclient-kerberos repository     | Jamie Lennox           |   |   | -1 |
| 120269 | Add py33/py34 to sqlalchemy-migrate zuul j | Joshua Harlow          |   |   | 1  |

# Reviewing a change

```
Terminal - elizabeth@r4e1: ~  
Change 117057 Sync: 586  
Change-Id I59d52739ea4447a130b8aa91db3c98d1a3deb285  
Owner Jeffrey Zhang  
Project openstack-infra/config  
Branch master  
Topic add_openstack-rating  
Created 2014-08-27 00:11:57  
Updated 2014-09-09 18:23:54  
Status NEW  
  
add openstack-rating channel to eavesdrop  
  
Change-Id: I59d52739ea4447a130b8aa91db3c98d1a3deb285  
  
Name Code-Review Verified Workflow  
Jeremy Stanley  
Steven Dake  
Jeffrey Zhang  
James E. Blair  
Jenkins  
Elizabeth K. Joseph +1  
  
gate-config-suggest-apply-prepare SUCCESS in 3m 37s  
gate-config-suggest-apply-prepare SUCCESS in 1m 13s  
gate-config-qa4 SUCCESS in 41s
```

# Side-by-side diff

```
Terminal - elizabeth@r4e1:~
Diff of openstack-infra/config change 122199 from base to patchset 3 Sync: 158
14
15 Change-Id: I43410b31cfad0b484842a21a
modules/openstack_project/files/zuul/layout.out.yaml
modules/openstack_project/files/zuul/layout.out.yaml
< Expand previous 10 > < Expand 2948 lines of context >
2939 - gate-bugdaystats-pep8 2939 - gate-bugdaystats-pep8
2940 post: 2940 post:
2941 - bugdaystats-branch-tarball 2941 - bugdaystats-branch-tarball
2942 - bugdaystats-coverage 2942 - bugdaystats-coverage
2943 2943
2944 - name: openstack-infra/config 2944 - name: openstack-infra/config
2945 template: 2945 template:
2946 - name: merge-check 2946 - name: merge-check
2947 check: 2947 check:
2948 - config-compare-xml 2948 - config-compare-xml
2949 - gate-config-layout 2949 - gate-config-pep8
2950 - gate-config-pep8 2950 - gate-config-bashate
2951 - gate-config-bashate 2951 - gate-config-puppet-syntax
2952 - gate-config-puppet-syntax 2952 - gate-config-irc-access
2953 - gate-config-irc-access 2953 - gate-config-puppet-apply-pre
2954 - gate-config-projects-yaml 2953 - gate-config-puppet-apply-cen
```

# Voting

```
Terminal - elizabeth@r4e1: ~
Change 113663 Sync: 768

Name | Review
Joe Gordon | Code-Review
Jenkins | ( ) -1
patrick-cr | ( ) 0
Chris Dent | (X) +1
Matthew Tr
Anita Kuno | Message:

gata-conf1
gata-conf1 < Save > < Cancel >
gata-conf1
gata-conf1
gata-conf1
cobfig.com | ged. in 2m
41s (non-v
check-proj
gata-ci-de
check-proj

Patch Set 1: 41fc29ee0277f5a796e7ef1c0a486d7618398030
```



# Why StoryBoard

Need for cross-teams coordination

Launchpad Bugs is great

Launchpad Blueprints is not great

Limits in Launchpad design (scale, API)

# Storyboard base concepts

Stories describe the problem to solve

Stories have tasks affecting projects

API server / Webclient design

- Search
- Dashboard
- Project Groups
- Projects
- Stories
- Profile
- Admin

# Storyboard should support complex priorities

**Author:** Michael Krotscheck  
**Last updated:** 2014-11-07 10:26:58 +0100

At the moment we're supporting only high, medium, and low. We need a better, server-configurable way of indicating task and story priority.

**Tasks** + Add task

|  |                             |                  |        |      |   |
|--|-----------------------------|------------------|--------|------|---|
| Storyboard should support complex priorities | openstack-infra/storyboard  | Click to assign. | Medium | Todo | X |
| Spec   | openstack-infra/infra-specs | Thierry Carrez   | Medium | Todo | X |

## Events timeline

|  |                           |
|--|---------------------------|
| Michael Krotscheck created this story.                                     | 2014-11-07 10:26:58 +0100 |
| Michael Krotscheck created "Storyboard should support complex priorities". | 2014-11-07 10:26:58 +0100 |
| Thierry Carrez   | 2014-11-25 14:21:14 +0100 |

Everyone has a different idea of what their priority is. Heck, some individuals even have to juggle between multiple priorities depending on which "hat" they are wearing (company priorities, release management priorities, project coore priorities...). A single priority for task or story, however complex and configurable, fails to provide the level of information we need for a complex ecosystem like OpenStack.

The vision is to implement multi-dimensional priorities, to let multiple parties have their own idea of a priority. This could be implemented through parallel, ordered story/task lists. Some of them would be public, some of them would be private, and nothing prevents a single team or individual to have several of those lists if they have multiple hats.

|                                |                           |
|--------------------------------|---------------------------|
| Thierry Carrez created "Spec". | 2014-11-25 14:21:29 +0100 |
|--------------------------------|---------------------------|

Enter your comment here

Comment



|   |   |          |
|---|---|----------|
| openstack-infra                         |   |          |
| openstack-infra/activity-board          | Tech community metrics dash of the OpenStack community based on the Metrics Grim... | 20 hours |
| openstack-infra/askbot-theme            | Theme for ask.openstack.org.  | 4 days   |
| openstack-infra/bugdaystats             | Tool to produce static HTML that shows progress during a Bug Day                    | 4 days   |
| openstack-infra/devstack-gate           | devstack-gate   | 39 hours |
| openstack-infra/elastic-recheck         | Classify tempest-devstack failures using Elasticsearch                              | 17 hours |
| openstack-infra/gear                    | Pure-Python asynchronous interface to Gearman                                       | 4 days   |
| openstack-infra/gearman-plugin          | The Jenkins gearman plugin  | 4 days   |
| openstack-infra/gerrit                  | Fork of Gerrit used by OpenStack  | 4 days   |
| openstack-infra/gerritbot               | gerritbot   | 4 days   |
| openstack-infra/gerritlib               | gerritlib   | 4 days   |
| openstack-infra/git-review              | git-review  | 4 days   |
| openstack-infra/gitdm                   | A fork of Jonathan Corbet's gitdm for OpenStack                                     | 4 days   |
| openstack-infra/groups                  | OpenStack Groups community portal   | 45 hours |
| openstack-infra/groups-static-pages     | Community portal static pages   | 4 days   |
| openstack-infra/infra-manual            | infra-manual  | 4 days   |
| openstack-infra/infra-specs             | OpenStack Infrastructure Blueprint Repository                                       | 4 days   |
| openstack-infra/irc-meetings            | OpenStack IRC meetings schedule   | 4 days   |
| openstack-infra/jeepyb                  | Gerrit Project Builder Tools  | 4 days   |
| openstack-infra/jenkins-job-builder     | jenkins-job-builder   | 3 days   |
| openstack-infra/lodgeit                 | lodgeit   | 4 days   |
| openstack-infra/meetbot                 | meetbot   | 4 days   |
| openstack-infra/nodepool                | Manage a pool of nodes for a distributed test infrastructure                        | 20 hours |
| openstack-infra/nose-html-output        | nose-html-output  | 4 days   |
| openstack-infra/odseq                   | OpenStack Design Summit session management system                                   | 4 days   |
| openstack-infra/openstackid             | Authentication system for the OpenStack Foundation site                             | 4 days   |
| openstack-infra/openstackweb            | OpenStack Foundation web site software  | 4 days   |
| openstack-infra/os-loganalyze           | log analyzer tools for logs.openstack.org   | 4 days   |
| openstack-infra/project-config          | configuration files for project CI systems  | 27 min.  |
| openstack-infra/publications            | OpenStack Infra Team conference presentations and papers                            | 4 days   |
| openstack-infra/puppet-apparmor         | puppet-apparmor   | 4 days   |
| openstack-infra/puppet-dashboard        | puppet-dashboard  | 4 days   |
| openstack-infra/puppet-elasticsearch    | Puppet module for elasticsearch   | 4 days   |
| openstack-infra/puppet-github           | Puppet module to add github functionality   | 4 days   |
| openstack-infra/puppet-httpd            | Puppet modules for deploying Apache in OpenStack infrastructure                     | 4 days   |
| openstack-infra/puppet-jenkins          | Puppet module to add jenkins functionality  | 18 hours |
| openstack-infra/puppet-kibana           | Puppet module to add kibana functionality   | 4 days   |
| openstack-infra/puppet-lodgeit          | Puppet module to manage Lodgeit   | 4 days   |
| openstack-infra/puppet-pip              | Puppet module to add pip functionality  | 4 days   |
| openstack-infra/puppet-storyboard       | Puppet module to deploy storyboard  | 4 days   |
| openstack-infra/puppet-vcstore          | puppet-vcstore  | 4 days   |
| openstack-infra/puppet-vinz             | Puppet module to deploy vinz  | 4 days   |
| openstack-infra/puppet-yum              | puppet-yum  | 4 days   |
| openstack-infra/puppet-zanata           | Puppet module to deploy Zanata  | 4 days   |
| openstack-infra/puppet-zuul             | Puppet module to install and configure zuul   | 4 days   |
| openstack-infra/pypi-mirror             | PyPI mirror builder   | 19 hours |
| openstack-infra/python-storyboardclient | Python Client Library for StoryBoard  | 4 days   |
| openstack-infra/release-tools           | OpenStack Release Tools   | 4 days   |
| openstack-infra/releasestatus           | OpenStack Release Status page generator   | 4 days   |
| openstack-infra/reviewday               | OpenStack code review report generator  | 4 days   |
| openstack-infra/reviewstats             | Scripts for generating OpenStack development community statistics                   | 4 days   |
| openstack-infra/shade                   | Client library for OpenStack containing Infra business logic                        | 4 days   |
| openstack-infra/statusbot               | Infrastructure status update IRC bot  | 4 days   |
| openstack-infra/storyboard              | OpenStack Task Tracking API   | 2 hours  |
| openstack-infra/storyboard-webclient    | OpenStack Task Tracking Browser Client  | 3 days   |
| openstack-infra/subunit2sql             | Tooling for converting subunit streams into a SQL DB                                | 4 days   |
| openstack-infra/system-config           | system-config   | 15 hours |
| openstack-infra/tripleo-ci              | CI for the tripleo project  | 20 hours |
| openstack-infra/vinz                    | Standalone UI replacement for Gerrit API  | 4 days   |
| openstack-infra/vinz-webclient          | Standalone UI replacement for Gerrit  | 4 days   |
| openstack-infra/yaml2ical               | Generate iCal files from a YAML description of meetings                             | 4 days   |
| openstack-infra/zmq-event-publisher     | Jenkins plugin to publish build events via ZMQ PUB SUB.                             | 4 days   |
| openstack-infra/zuul                    | zuul  | 3 days   |
| openstack-infra/zuul-packaging          | Zuul packaging  | 4 days   |

Docs at:

[ci.openstack.org](https://ci.openstack.org)

Join us on Freenode:

[#openstack-infra](https://freenode.net)

Thank *you* !

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<http://ttx.re>

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