

How to Participate Open Source development

- Open Source development tooling and community in the upstream -

Masayuki Igawa: masayuki@igawa.io

masayukig on Freenode, GitHub, Twitter, LinkedIn

@Room 201, 13:45-14:30, October 6, 2019

@openSUSE.Asia Summit 2019

<https://github.com/masayukig/oss-development-inside-story>

This work is licensed under a Creative Commons Attribution 4.0 International License



Agenda

1. Who am I?
2. Today's Goal
3. Open Source Communities
4. OpenStack as an example
5. True Stories
6. How to Participate
7. Summary

DISCLAIMER

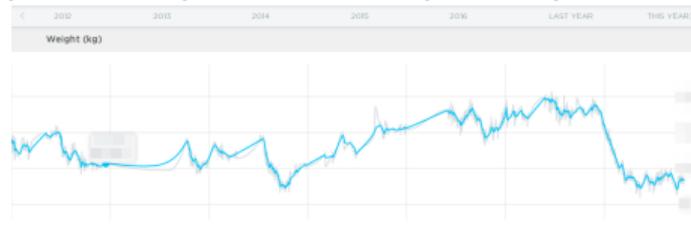
These slides are my own opinion

Who am I?

- ▶ Company : 1998.4-2015.12 Traditional IT company in Japan,
2016.1-2017.3 HPE -> 2017.3- SUSE -> 2019("Further Independence for SUSE")
 - ▶ SUSE OpenStack Cloud QE(Quality Engineering) Team
- ▶ Job: Senior Software Engineer/Open Source Programmer
 - ▶ [OpenStack QA](#) Up/Downstream development, Core Reviewer
(Tempest, OpenStack-Health, Subunit2SQL, Stackviz,etc.), [stestr](#)
 - ▶ stackalytics.com/?user_id=igawa, github.com/masayukig



- ▶ Books
 - ▶ [OpenStack Cloud Integration](#) (Japanese book) (one of the authors)
 - ▶ [Infra CI Pragmatic Guide - Ansible/GitLab](#) (Japanese book) (as a reviewer)
- ▶ Hobby: Bike(BMC SLR02), Clouds(OpenStack...), Diet(Low-carb), etc.



Introduction

Today's Goal

- ▶ Development ways/tools in OpenStack/OSS communities
- ▶ To understand essence of OSS development, and it's fun

Open Source Communities?

Led by

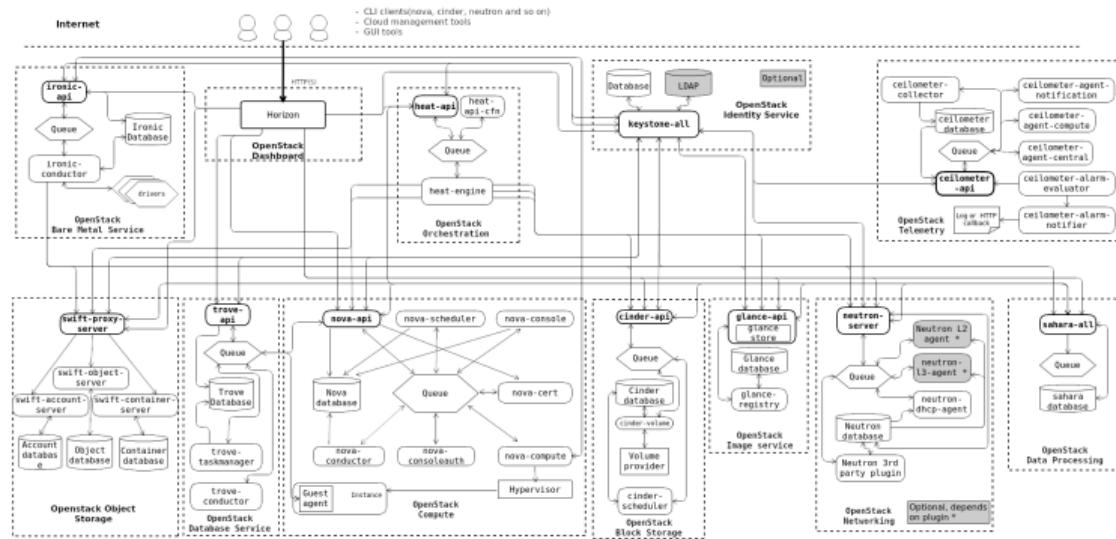
- ▶ Individual (so many, you can find a lot on github)
- ▶ One company (openSUSE, Ansible, Elastic Search, ..)
- ▶ Foundation (OpenStack, Kubernetes, ..)

There are a lot differences among OSS projects. Let's take a look at the OpenStack community as an example.

OpenStack community as an example

What is the “OpenStack”?

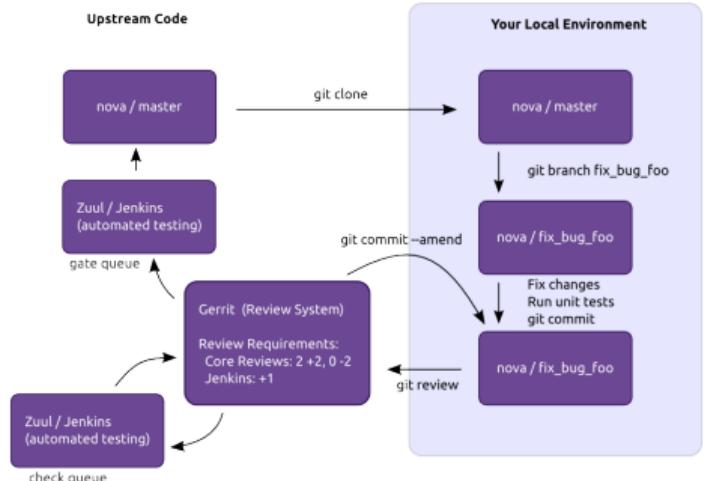
- Written in Python, Open Source Cloud Operation System: Apache License 2.0
- One of the top three active OSS communities
- There are a lot of ‘OpenStack’ projects: [63 projects\(2019-10-05\)](https://www.openstack.org/projects/)
- Released every 6 month: Latest version is called ‘Queens’
- Users: AT&T, AA, BBVA, Bloomberg, CERN, China Mobile, Gap, VEXXHOST, Volkswagen, WALMART, etc.. <https://www.openstack.org/user-stories/>



Development Workflow in OpenStack

<https://docs.openstack.org/infra/manual/developers.html>

1. Submit a story to StoryBoard & discuss (Option)
2. Make a patch and submit it to Gerrit
3. Automated testing by Zuul
4. Review it on Gerrit
5. Automated testing by Zuul, and merge



Tools

- IRC on Freenode: `#openstack-*`(dev,nova,glance,qa,..) <https://freenode.net/>
- Mailing List: <http://lists.openstack.org/>
- StoryBoard: <https://storyboard.openstack.org/>
- Launchpad: <https://launchpad.net>
- Gerrit: <https://review.openstack.org/>

Project management by StoryBoard - What's "StoryBoard"

- ▶ Story management tool developed by the OpenStack community
- ▶ Built from scratch
- ▶ Architecture: Frontend: JS/Angular, Backend: Python/Pecan
- ▶ 100% open source (Apache2.0)

The screenshot shows the StoryBoard application interface. The left sidebar has a dark theme with icons for Search, Dashboard, Worklists & Boards, Project Groups, Projects (selected), and Stories. The main area shows a list of stories for the project 'openstack-infra/storyboard'. The list is titled 'OpenStack Task Tracking API' and includes the following stories:

ID	Description	Status	Actions
2004103	unable to install mariadb on multinode architecture	Active	[View] [Edit]
2004098	Create New fails to create stories	Active	[View] [Edit]
2004097	story lists in project view should only show stories with active tasks for that project	Active	[View] [Edit]
2003944	Auto populate assignee to task when review is pushed	Active	[View] [Edit]
2003886	Project Group Descriptions	Active	[View] [Edit]
2003719	BUG: Card links don't work in boards	Active	[View] [Edit]
2003701	Mixed Story & Task Automatic Worklist Error	Active	[View] [Edit]
2003698	Feature Request: Enforce flavor extended parameters	Active	[View] [Edit]
2003663	Browsing tasks on the search view sometimes gives an error	Active	[View] [Edit]
2003554	Unicode issue with (at least) reporter names in migration from Launchpad	Active	[View] [Edit]

At the top right, there are buttons for 'Add story', 'Jump to...', and user information.

Gerrit review system - What's "Gerrit"

- Android development community is using it
- Java, 100% open source
- Not Pull Request, submit a patch and merge it into a central repo
- A terminal client exists > Gerty: <https://gerty.readthedocs.io/>

The screenshot displays the Gerrit Code Review interface. At the top, there are two navigation bars: one for Gerrit Code Review with links for About, News, Issues, Code, Docs, Feedback, and Search; and another for openstack with links for Projects, Documentation, Open, Merged, and Abandoned. The main content area has a heading 'Search for status:open'. Below this is a table listing various Gerrit patches. The columns include Subject, Status, Owner, Project, Branch, Updated, Size, and CR/V/W counts. The table lists patches for 'master' and 'trivial' branches across projects like 'openstack/infra', 'openstack/ceilometer', 'openstack/cinder', 'openstack/ironic', 'openstack/trove', and 'openstack/tripleo'. The bottom part of the screenshot shows a detailed view of a code diff between 'origin/master' and 'origin/upgrade-checkers' for a file named 'PatchSet 1'. The diff highlights changes in 'PatchSet 1' and includes a 'Stash' button.

FYI: Gerty - Gerrit in TTY

- Terminal client
- <https://gerty.readthedocs.io/>
- Demo

File Edit View Bookmarks Settings Help

Unreviewed 51 changes in openstack/tempest Error Sync: 0

Number	Subject	Branch	Topic	Owner	Updated	Size	C	V	W
570287	Deprecate available filters in favor of enabled	master	bug/1628443	Arton Llfshitz	2018-10-24	1	1	1	1
549111	Add test test_create_server_with_bdm_source_image	master	bdm_image	zhufl	2018-10-24	1	1	1	1
602981	Update REVIEWING docs with fast-track approval process	master	reviewing	Felipe Montelro	2018-10-24	1	1	1	1
612277	[Negative] Extend volume over quota limit	master	extend_volume_negati	Liron Kuchlani	2018-10-23	1	1	1	1
588120	Set max microversion 2.35 for nova floatingip and securitygroup	master	bp/clear-deprecated-	zhufl	2018-10-23	2	1	1	1
611068	Make connectivity test less backend dependent	master	bug/1798317	Lucas Alvares Gomes	2018-10-23	1	1	1	1
523935	Add profiler support into Tempest	master	profiler	Ilya Shakhat	2018-10-23	1	1	1	1
602415	Use tempest run command directly for full job	master	use-tempest-run	Masayuki Igawa	2018-10-22	1	1	1	1
560073	Forbid oslo.log to write to STDOUT	master	bug/1764375	Federico Rossi	2018-10-19	1	1	1	1
606909	Adding missing test case of account generator resources	master	606880	Manik Bindlish	2018-10-18	2	1	1	1
609644	Add response schema validation for volume limits	master	bp/volume-response-s	zhufl	2018-10-18	1	1	1	1
608706	Add ipv6 tempest jobs	master	ipv6job	Antonio Ojea	2018-10-17	1	1	1	1
587748	Adding missing test cases in "test_run.py"	master	bp/tempest-cli-unit-	Manik Bindlish	2018-10-17	1	1	1	1
594037	Add testcase for getting hypervisor servers in 2.53	master	hypervisor-252	zhufl	2018-10-16	1	1	1	1
600921	Add response schema validation for snapshot manage	master	bp/volume-response-s	zhufl	2018-10-13	1	1	1	1
605600	Add response schema validation for volume quota classes	master	bp/volume-response-s	zhufl	2018-10-13	1	1	1	1
609624	Add response schema validation for volume snapshots	master	bp/volume-response-s	zhufl	2018-10-12	1	1	1	1
606809	Add response schema validation for encryption types	master	bp/volume-response-s	zhufl	2018-10-12	1	1	1	1
608875	Add response schema validation for volume manage	master	bp/volume-response-s	zhufl	2018-10-12	1	1	1	1
534250	Check network connectivity of the instance before and after live migration	master	scenario.live_migrat	Liang Hao	2018-10-11	1	1	1	1
608898	Add response schema validation for volume transfer	master	bp/volume-response-s	zhufl	2018-10-11	1	1	1	1
605595	Add response schema validation for volume extensions	master	bp/volume-response-s	zhufl	2018-10-10	2	1	1	1
605985	Add response schema validation for volume types	master	bp/volume-response-s	zhufl	2018-10-10	1	1	1	1
606772	Add response schema validation for volume group snapshots	master	bp/volume-response-s	zhufl	2018-10-10	1	1	1	1
603339	Add response schema validation for volume quota set	master	bp/volume-response-s	zhufl	2018-10-10	1	1	1	1
605917	Add response schema validation for volume pools	master	bp/volume-response-s	zhufl	2018-10-09	1	1	1	1
606328	Add response schema validation for volume groups	master	bp/volume-response-s	zhufl	2018-10-09	1	1	1	1
606244	Add response schema validation for volume group types	master	bp/volume-response-s	zhufl	2018-10-08	1	1	1	1
603580	Add response schema validation for volume messages	master	bp/volume-response-s	zhufl	2018-10-08	1	1	1	1
605574	Add response schema validation for volume capabilities	master	bp/volume-response-s	zhufl	2018-10-08	1	1	1	1
589279	Immutable user source: test_llst_users	master	bug/1777847	Anna Pankiewicz	2018-10-05	1	1	1	1
587878	Immutable user source: test_credentials	master	bug/1777847	Anna Pankiewicz	2018-09-27	1	1	1	1
588393	Immutable user source: test_default_project_id	master	bug/1777847	Anna Pankiewicz	2018-09-27	1	1	1	1
588395	Immutable user source: test_users_negative	master	bug/1777847	Anna Pankiewicz	2018-09-27	1	1	1	1
607726	Use system creds for system operations	master	system-creds	Jamie Lennox	2018-09-25	1	1	1	1
384528	Adds protocol options for test_cross_tenant_traffic	master	bug/1363986	Claudiu Belu	2018-09-20	2	1	1	1
603295	Add response schema validation for volume hosts	master	bp/volume-response-s	zhufl	2018-09-20	1	1	1	1

↳ Subscribed projects

Continuous Integration by Zuul - What's "Zuul"

- Set a gate by automated testing - only properly working code can be merged
- CI/CD powered by Ansible
- Dependencies across different projects can be tested

The screenshot shows the Zuul CI interface with several project queues:

- Queue: openstack/tripleo-heat-templates**
 - openstack/tripleo-heat-templates 612249.1 (Status: Pending, 0 min)
 - openstack/tripleo-heat-templates 612316.1 (Status: Pending, 0 min)
 - openstack/tripleo-heat-templates 612601.1 (Status: Pending, 0 min)
 - openstack/tripleo-heat-templates 612602.1 (Status: Pending, 3 hr 51 min)
- Queue: openstack/networking-ovn**
 - openstack/networking-ovn 608252.4 (Status: Pending, 0 min)
- Queue: openstack/mistral**
 - openstack/mistral 610461.12 (Status: Pending, 0 min)
- gate [16]**

Changes that have been approved by core reviewers are enqueued in order in this pipeline, and if they pass tests, will be merged. For documentation on how gating with Zuul works, please see <https://zuul-ci.org/docs/zuul/user/gating.html>

 - openstack/tripleo-quickstart-extras 609550.3 (Status: Pending, 15 min)
 - openstack/tripleo-quickstart 612289.1 (Status: Pending, 25 min)
 - openstack/tripleo-heat-templates 611309.3 (Status: Pending, 2 hr 20 min)
- post [0]**

This pipeline runs jobs that operate after each change is merged. Queue items are identified by the abbreviated hash (git log --format=hex) of the merge commit.
- promote [0]**

This pipeline runs jobs that operate after each change is merged in order to promote artifacts generated in the gate pipeline.
- pre-release [0]**

When a commit is tagged with a pre-release tag, this pipeline runs jobs that publish archives and documentation.
- release [0]**

When a commit is tagged as a release, this pipeline runs jobs that publish archives and documentation.
- periodic [0]**

Jobs in this queue are triggered on a timer.
- release-post [0]**

This pipeline runs release-process-critical jobs that operate after specific changes are merged.
- tag [0]**

This pipeline runs jobs in response to any tag event.
- periodic-stable [0]**

Periodic checks of the stable branches.

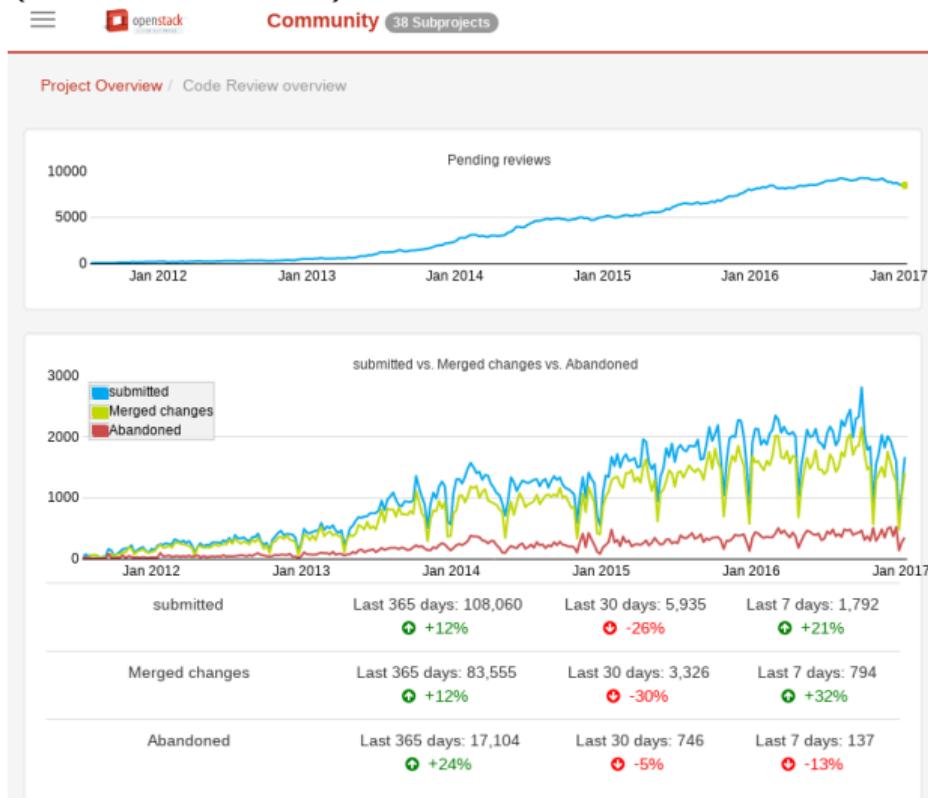
Inside Story

1. It takes a long time to get merged. Reason?
2. Unstable CI
3. Communication is important

1. It takes a long time to get merged. Reason?

- ▶ Project size \asymp Number of stakeholders
- ▶ Less communication (sending an email isn't a good idea)
- ▶ Less reviewers (next slide)
- ▶ Unstable and Slow CI

1. Less reviewers (cont. Reason)



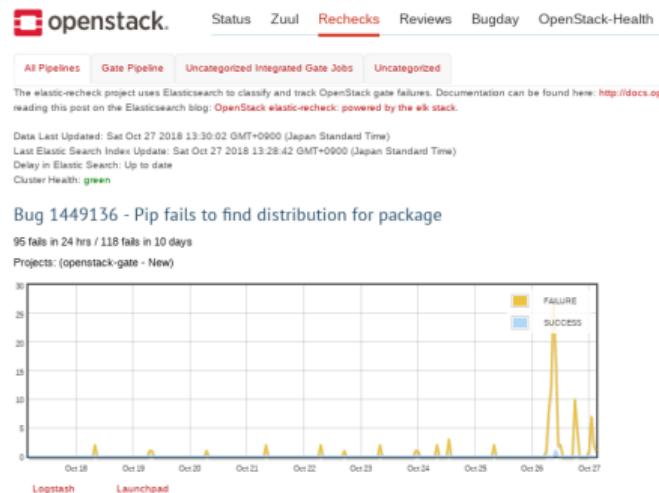
<http://activity.openstack.org/dash/browser/scr.html>

2. Unstable CI

- ▶ Easily rot if the code doesn't work in CI
- ▶ “CI” is not perfect
- ▶ Rapid fixing is necessary - next slide

2. Elastic Recheck (cont. Unstable CI)

Correlate a bug to a signature in a log, and detect the bug automatically



The screenshot shows a log query configuration file named 1737039.yaml with a size of 105B. The file contains the following code:

```
query: >-
  message:"Kernel panic - not syncing" AND
  message:"timer doesn't work" AND
  tags:"console"
```

Below the code, there are buttons for Raw, Permalink, Blame, History, and edit/delete icons.

<http://status.openstack.org/elastic-recheck/>, <https://opendev.org/opendev/elastic-recheck/src/branch/master/queries/1737039.yaml>

3. Communication is important (English is hard)

- ▶ Discussion
- ▶ Find a job (e.g. difficult to get good salary as a programmer basically in Japan)
- ▶ Fun (Take care of yourself! :)

Masayuki Igawa @ [@masayukig](#)

#aftersoc #afterstack #OpenStackSummit
#openstack #suse



1:45 PM - 26 May 2018

12 Likes 

Comment Share Like 12 More

Kendall Nelson  Following

Kicking off the #OpenStackSummit early with #OpenStackUpstreamInstitute! 19 attendees and 14 mentors made it today :)
@tonybreeds @jungleboyj @ldikoVancsa @vkmc @kmarc @marton_kiss @spotzz_ @ghanshyammann @masayukig



6:59 AM - 20 May 2018

7 Retweets 31 Likes 

Comment Share Like 7 More

3. English as a second language (cont. Communication is important)

- ▶ We have a document:
<https://docs.openstack.org/doc-contrib-guide/non-native-english-speakers.html>
- ▶ Not only language but also culture (For example: Zensho shimasu (善処します))

How to participate Open Source Community

How to participate Open Source development

- ▶ As a study, hobby or job?
- ▶ Find a project which you are interested in
- ▶ Find online/offline mentor(s) and friends
- ▶ Not only code, using/testing, submit bugs/issues, documentation, translation, etc.

Conclusion

- ▶ Gerrit, StoryBoard, Zuul, OSS can be used for non-OSS product
- ▶ Communication is important, and English too
- ▶ Development OSS is fun! and tough sometimes. Why not participate in it?

Appendix

- ▶ Slides: [https://github.com/masayukig/oss-development-inside-story/
blob/master/oss-development-inside-story.pdf](https://github.com/masayukig/oss-development-inside-story/blob/master/oss-development-inside-story.pdf)
- ▶ Contact info: masayukig on [Freenode](#), [GitHub](#), [Twitter](#), [LinkedIn](#)
- ▶ StoryBoad:
<https://docs.openstack.org/infra/system-config/storyboard.html>
- ▶ Gerrit: <https://www.gerritcodereview.com/>
- ▶ Zuul: <https://zuul-ci.org/>
- ▶ Non-native English speakers in Open Source communities:
<http://bit.ly/esl-yvr>