

QA in the Open

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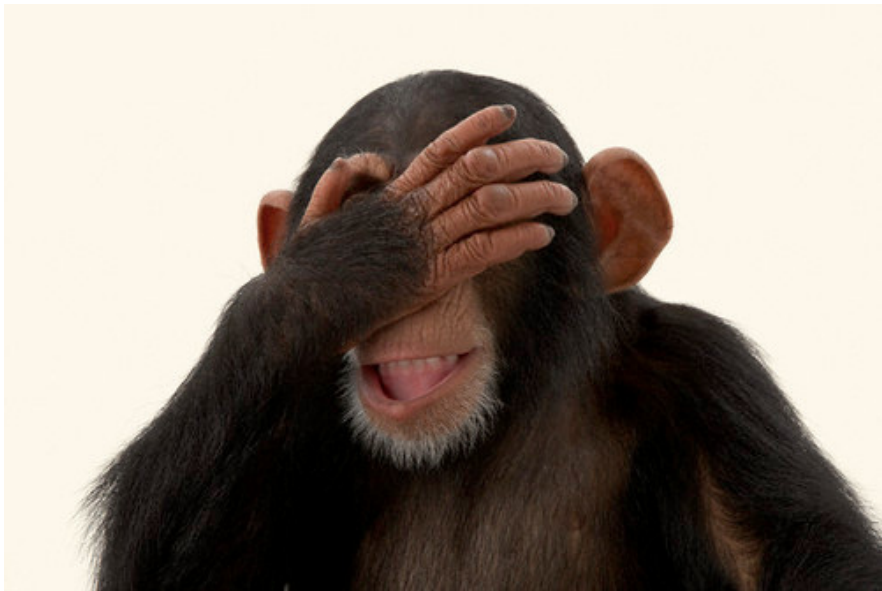
January 17, 2016

<https://github.com/mtreinish/qa-in-the-open/tree/lca2017>

What do I mean by Open Source QA

- ▶ Doing Software QA in an Open Source manner
- ▶ Includes running tests and hosting results in the public
- ▶ Basically treat a project's QA like any other Open Source project

My Personal Experiences with Enterprise QA



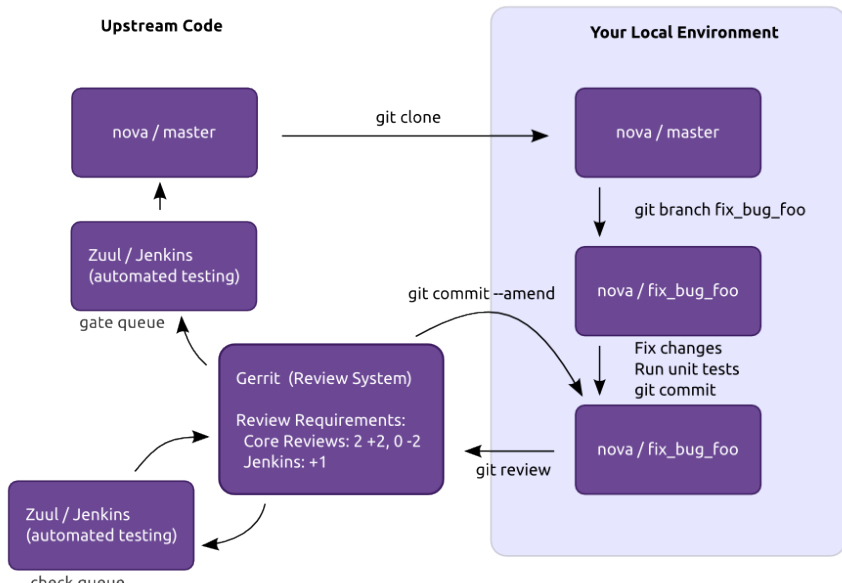
What is OpenStack QA?

- ▶ Official Mission Statement:
Develop, maintain, and initiate tools and plans to ensure the upstream stability and quality of OpenStack, and its release readiness at any point during the release cycle.

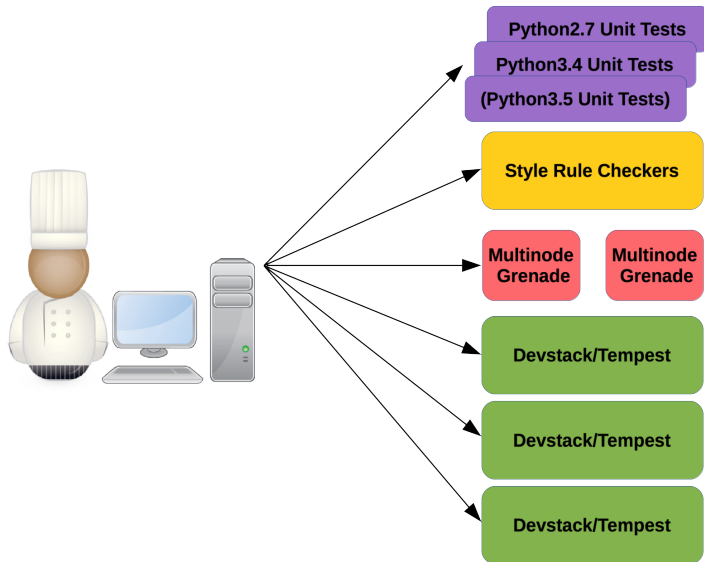
Current OpenStack QA Projects

- ▶ devstack
- ▶ devstack-plugin-cookiecutter
- ▶ devstack-plugin-ceph
- ▶ devstack-vagrant
- ▶ grenade
- ▶ tempest
- ▶ tempest-lib
- ▶ tempest-plugin-cookiecutter
- ▶ bashate
- ▶ stackviz
- ▶ hacking
- ▶ eslint-config-openstack
- ▶ os-testr
- ▶ os-performance-tools
- ▶ openstack-health dashboard
- ▶ karma-subunit-reporter

What is “the OpenStack Gate”?



What Happens when you push a change?



Newly uploaded patchsets enter this pipeline to receive an initial +1/Verified vote from Jenkins.

Change queue: **openstack/neutron**

openstack/neutron 181674.23	unknown 3 hr 57 min
gate-neutron-docs:	SUCCESS
gate-neutron-pep8:	SUCCESS
gate-neutron-python27:	FAILURE
gate-neutron-python34:	FAILURE
gate-tempest-dsvm-neutron-full:	queued
gate-grenade-dsvm-neutron:	SUCCESS
gate-neutron-dsvm-api:	SUCCESS
gate-neutron-dsvm-functional:	SUCCESS
gate-neutron-dsvm-fullstack: (non-voting)	SUCCESS
gate-rally-dsvm-neutron-neutron: (non-voting)	SUCCESS
gate-tempest-dsvm-neutron-dvr:	SUCCESS
gate-tempest-dsvm-neutron-identity-v3-only-full-nv: (non-voting)	SUCCESS
gate-tempest-dsvm-neutron-linuxbridge:	SUCCESS
gate-tempest-dsvm-neutron-pg-full: (non-voting)	SUCCESS
gate-neutron-ibaaSv2-dsvm-minimal:	SUCCESS
gate-grenade-dsvm-neutron-multinode: (non-voting)	SUCCESS
gate-grenade-dsvm-neutron-dvr-multinode: (non-voting)	SUCCESS
gate-tempest-dsvm-neutron-multinode-full: (non-voting)	SUCCESS
gate-tempest-dsvm-neutron-dvr-multinode-full: (non-voting)	SUCCESS
gate-tempest-dsvm-ironic-pxe_ipa-nv: (non-voting)	SUCCESS

Change queue: **openstack/networking-generic-sw...**

openstack/networking-generic-switch 306894.3	unknown 3 hr 52 min
gate-networking-generic-switch-docs:	queued
gate-networking-generic-switch-pep8:	SUCCESS
gate-networking-generic-switch-python27:	SUCCESS
gate-networking-generic-switch-python34:	SUCCESS
gate-networking-generic-switch-dsvm:	SUCCESS

Change queue: **openstack/neutron**

openstack/neutron 280595.12	unknown 3 hr 39 min
gate-neutron-docs:	SUCCESS
gate-neutron-pep8:	SUCCESS
gate-neutron-python27:	SUCCESS
gate-neutron-python34:	SUCCESS
gate-tempest-dsvm-neutron-full:	SUCCESS
gate-grenade-dsvm-neutron:	SUCCESS
gate-neutron-dsvm-api:	SUCCESS
gate-neutron-dsvm-functional:	SUCCESS
gate-neutron-dsvm-fullstack: (non-voting)	FAILURE
gate-rally-dsvm-neutron-neutron: (non-voting)	queued
gate-tempest-dsvm-neutron-dvr:	SUCCESS
gate-tempest-dsvm-neutron-identity-v3-only-full-nv: (non-voting)	SUCCESS
gate-tempest-dsvm-neutron-linuxbridge:	SUCCESS
gate-tempest-dsvm-neutron-pg-full: (non-voting)	SUCCESS

Changes that have been approved by core developers are enqueued in order in this pipeline, and if they pass tests in Jenkins, will be merged.

Change queue: **integrated**

openstack/nova 307269.1	0 min 1 hr 10 min
gate-nova-docs:	SUCCESS
gate-nova-pep8:	SUCCESS
gate-nova-python27-db:	SUCCESS
gate-nova-python34-db:	SUCCESS
gate-nova-requirements:	SUCCESS
gate-tempest-dsvm-full:	SUCCESS
gate-tempest-dsvm-postgres-full:	SUCCESS
gate-tempest-dsvm-neutron-full:	SUCCESS
gate-grenade-dsvm:	SUCCESS
gate-nova-releasenotes:	SUCCESS
gate-nova-tox-db-functional:	SUCCESS
gate-grenade-dsvm-multinode:	SUCCESS
gate-tempest-dsvm-cells:	SUCCESS
gate-tempest-dsvm-full-devstack-plugin-ceph:	SUCCESS

openstack/nova 304730.1	0 min 1 hr 10 min
gate-nova-docs:	SUCCESS
gate-nova-pep8:	SUCCESS
gate-nova-python27-db:	SUCCESS
gate-nova-python34-db:	SUCCESS
gate-tempest-dsvm-full:	SUCCESS
gate-tempest-dsvm-postgres-full:	SUCCESS
gate-tempest-dsvm-neutron-full:	SUCCESS
gate-grenade-dsvm:	SUCCESS
gate-nova-releasenotes:	SUCCESS
gate-nova-tox-db-functional:	SUCCESS
gate-grenade-dsvm-multinode:	SUCCESS
gate-tempest-dsvm-cells:	SUCCESS
gate-tempest-dsvm-full-devstack-plugin-ceph:	SUCCESS

openstack/nova 303995.1	0 min 1 hr 5 min
gate-nova-docs:	SUCCESS
gate-nova-pep8:	SUCCESS
gate-nova-python27-db:	SUCCESS
gate-nova-python34-db:	SUCCESS
gate-tempest-dsvm-full:	SUCCESS
gate-tempest-dsvm-postgres-full:	SUCCESS
gate-tempest-dsvm-neutron-full:	SUCCESS
gate-grenade-dsvm:	SUCCESS
gate-nova-tox-db-functional:	SUCCESS
gate-grenade-dsvm-multinode:	SUCCESS
gate-tempest-dsvm-cells:	SUCCESS
gate-tempest-dsvm-full-devstack-plugin-ceph:	SUCCESS

openstack/dev/devstack 308791.1	0 min 1 hr 5 min
gate-devstack-docs:	SUCCESS

This pipeline runs jobs that operate after each change is merged.

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

openstack/oslo.concurrency 342ef03	unknown 5 hr 2 min
oslo.concurrency-branch-tarball:	SUCCESS
oslo.concurrency-docs:	queued
oslo.concurrency-upstream-translation-update:	SUCCESS
oslo.concurrency-coverage:	queued

Change queue: **openstack-infra/project-config**

openstack-infra/project-config 08001cc	unknown 5 hr 0 min
publish-infra-docs-index:	queued
publish-specs-site:	queued

Change queue: **openstack-infra/project-config**

openstack-infra/project-config bd07b6c	unknown 4 hr 56 min
publish-infra-docs-index:	queued
publish-specs-site:	queued

Change queue: **openstack/networking-vsphere**

openstack/networking-vsphere 1931ebe	unknown 4 hr 55 min
networking-vsphere-branch-tarball:	queued
networking-vsphere-docs:	queued

Change queue: **openstack-infra/project-config**

openstack-infra/project-config d700f6	unknown 4 hr 54 min
publish-infra-docs-index:	queued
publish-specs-site:	queued

Change queue: **openstack-infra/project-config**

openstack-infra/project-config 8cb6337	unknown 4 hr 52 min
publish-infra-docs-index:	queued
publish-specs-site:	queued

Change queue: **openstack/stackalytics**

openstack/stackalytics 4007b8	unknown 4 hr 7 min
hook-stackalytics-rtd:	SUCCESS
stackalytics-branch-tarball:	queued

Change queue: **openstack/stackalytics**

openstack/stackalytics ae58a37	unknown 4 hr 7 min
hook-stackalytics-rtd:	SUCCESS
stackalytics-branch-tarball:	queued

Change queue: **openstack/inveniance**

In The Beginning

- ▶ Projects had unit tests
- ▶ Some projects had functional tests
- ▶ Testing was central to OpenStack culture
- ▶ But, no dedicated effort on QA or testing

Then there was Tempest

- ▶ The OpenStack integration suite
- ▶ Runs against a running OpenStack cloud via the REST APIs
- ▶ First dedicated QA effort in the community

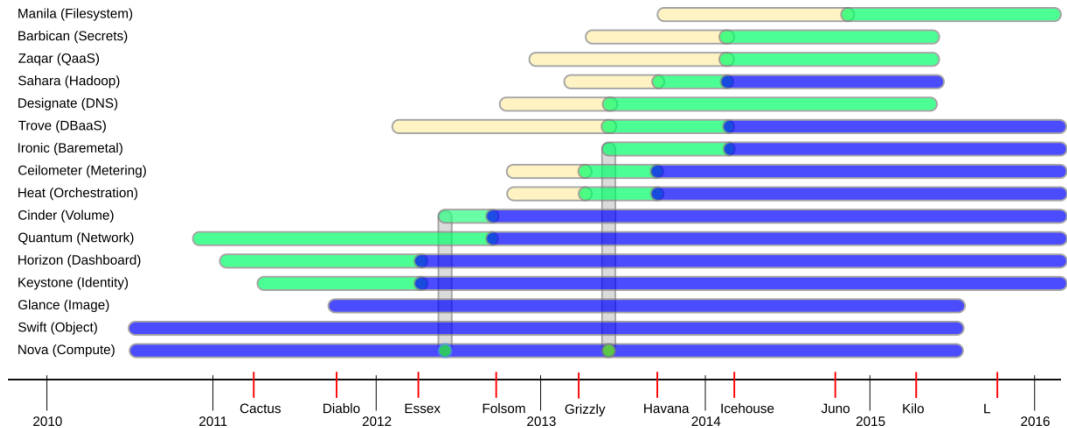
QA Becoming a Defined Group

- ▶ 2 years later a separate project was created in governance around QA
- ▶ Started with just 2 projects: Tempest and Grenade
- ▶ Slowly started to consolidate several existing and add new projects

Early Approach to QA

- ▶ Only support for testing **Integrated** and **Incubated** projects
- ▶ Closer to a more traditional top down approach
- ▶ Testing was mostly unit tests and tempest tests
- ▶ All integrated and incubated projects had to co-gate against each other in 1 large integrated gate queue

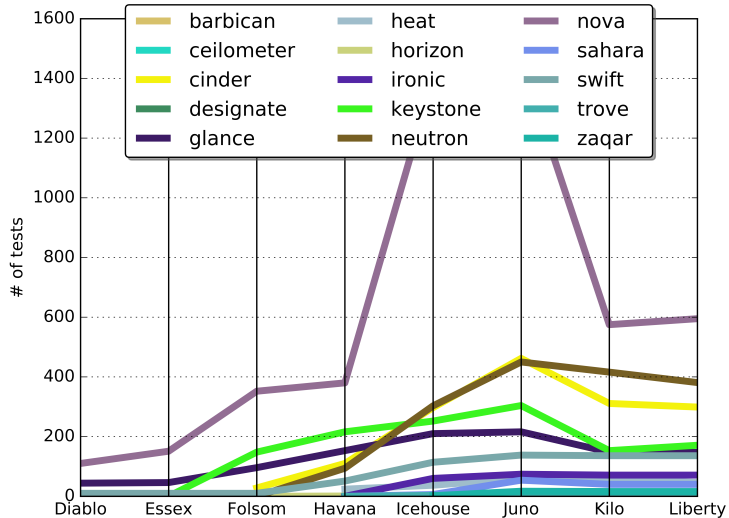
OpenStack Project Growth



QA Growing Pains

- ▶ QA Projects have a small core review team
- ▶ Limited expertise on newer projects
- ▶ Project teams weren't motivated to contribute

Tempest Tests per Project



The Big Tent

- ▶ OpenStack's most recent governance change
- ▶ Went from having a strict 2 stage approval process and a small set of OpenStack projects to a more inclusive approach
- ▶ Integrated and incubated projects no longer a thing
- ▶ Designed to switch from choosing winners to building an ecosystem

The Big Tent. . .



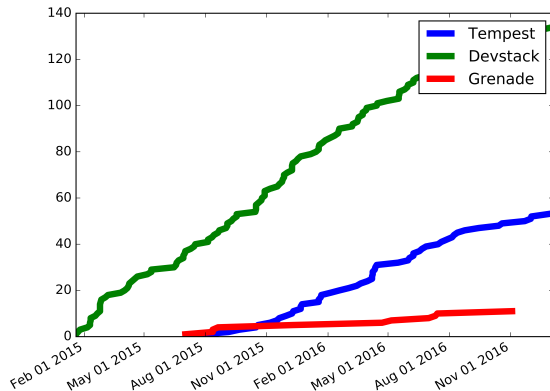
QA in the Big Tent

- ▶ QA projects will still provide direct support for base IaaS projects
- ▶ Provide stable plugin interfaces to expand functionality for other projects
- ▶ Better fits with the growth in projects

Introducing Plugin Interfaces

- ▶ Add stable interfaces to expand QA project functionality
- ▶ Enable any project to self service their own QA
- ▶ Concentrate on making things in QA projects externally reusable
- ▶ Started with Devstack, now Tempest and Grenade too

Lessons from OpenStack QA



- ▶ Monolithic and Separate doesn't scale
- ▶ Keeping Things Separate increases friction
- ▶ Make testing part of your community culture

Advantages

- ▶ Enables external audit of testing
- ▶ User confidence in project
- ▶ Enables independently repeatable testing
- ▶ Reusable components

Potential Issues

- ▶ Lack of Corporate Contribution
- ▶ Limited Free Resources for running tests
- ▶ Sometimes difficult to get community buy in

Where to get more information

- ▶ openstack-dev ML openstack-dev@lists.openstack.org
- ▶ #openstack-qa on Freenode
- ▶ <https://wiki.openstack.org/wiki/QA>

Questions?