

elastic{ON}<sup>15</sup>

# elastic-Recheck Yourself Before You Wreck Yourself: How Elasticsearch Helps OpenStack QA

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@pleia2



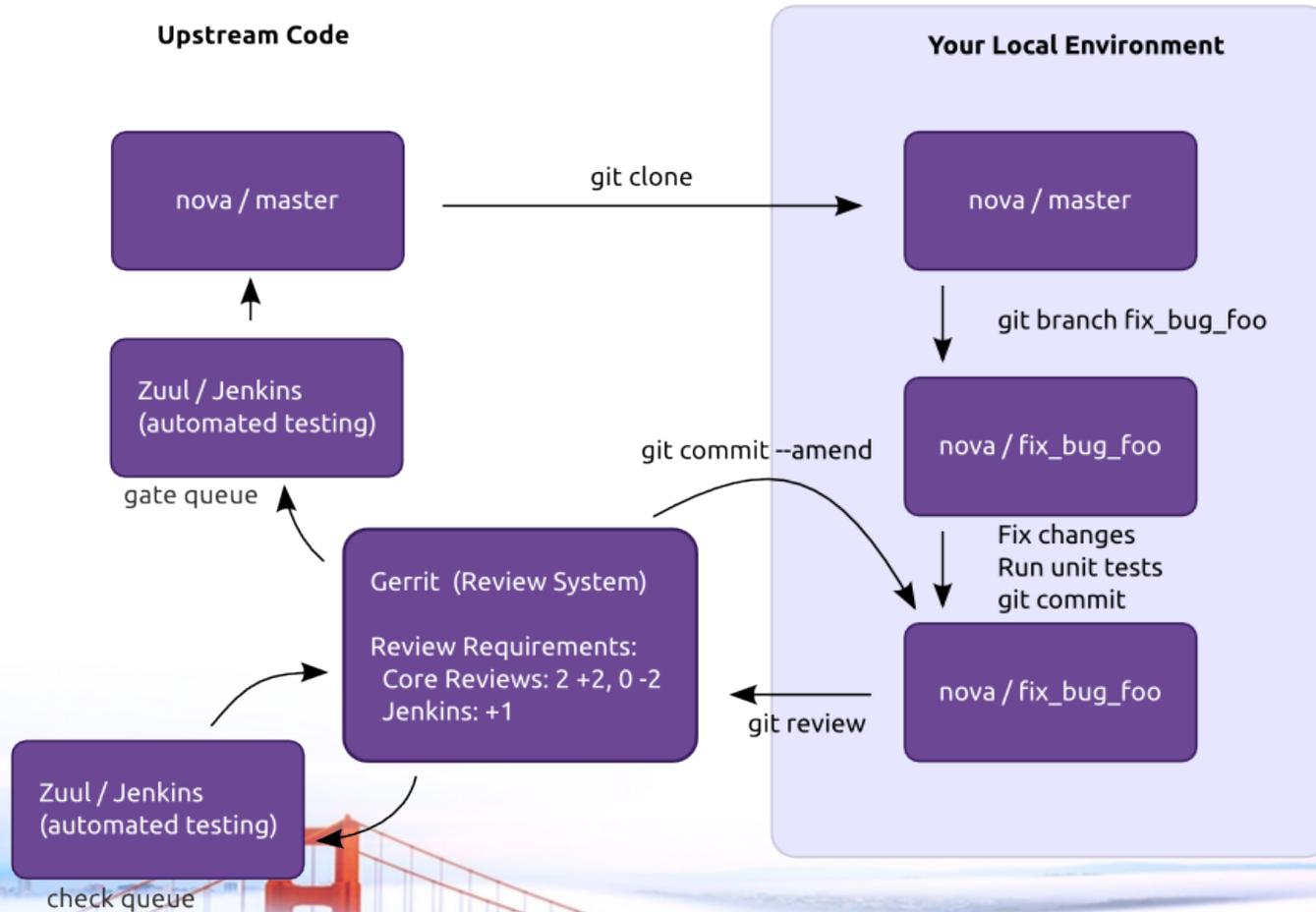
# OpenStack Infrastructure Team

- Manages the continuous integration system
- Provides technical enforcement of project-wide policies
- Hosts miscellaneous services for developers

# The OpenStack Gate

All changes submitted to OpenStack must pass a series of automated unit and integration tests.

# Developer workflow



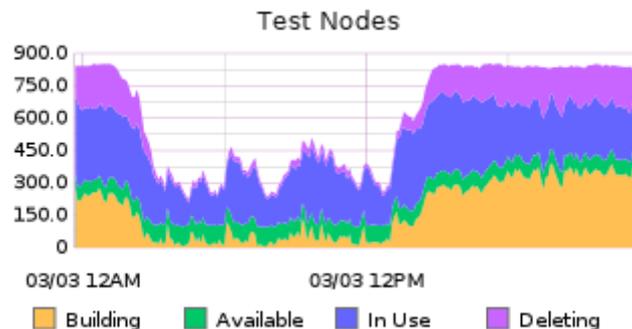
# Our goal

A certain level of code quality through coding standards (pep8 standards, pyflakes).

Known working code when anyone pulls from the development branch of OpenStack.

# Our fleet

We have over 800 VMs running thousands of tests per day.



# Gate failures

Upstream service outage

Infrastructure problems or bugs

OpenStack project bugs

Test bugs

Dependency problems

# elastic-recheck

**Collects, organizes and detects** failures to make it easier for developers to discover and fix them.

# Lots of logs

1.1 terabytes of compressed logs per month

So we now send a subset to our ELK stack for analysis

Let's walk through how this works for a failure  
that's new to us

# 1. There is a failure in the gate, but there shouldn't be, the code being tested is fine.

**Jenkins** Feb 25 3:31 PM

Patch Set 8: Verified-1

Build failed (check pipeline). For information on how to proceed, see <http://docs.openstack.org/infra/manual/developers.html#automated-testing>

gate-nova-pep8	SUCCESS in 7m 49s
gate-nova-docs	SUCCESS in 7m 37s
gate-nova-python27	SUCCESS in 11m 38s
check-tempest-dsvm-full	SUCCESS in 45m 05s
check-tempest-dsvm-postgres-full	SUCCESS in 48m 56s
check-tempest-dsvm-neutron-full	SUCCESS in 1h 12m 44s
check-grenade-dsvm	FAILURE in 6m 45s
gate-tempest-dsvm-large-ops	SUCCESS in 30m 00s
gate-tempest-dsvm-neutron-large-ops	SUCCESS in 24m 41s
check-devstack-dsvm-cells	SUCCESS in 31m 16s
gate-nova-tox-functional	SUCCESS in 12m 26s
check-grenade-dsvm-partial-ncpu	SUCCESS in 39m 25s
check-tempest-dsvm-ironic-pxe_ssh	SUCCESS in 40m 24s
check-tempest-dsvm-nova-v21-full	SUCCESS in 43m 40s
check-tempest-dsvm-cells	FAILURE in 34m 43s (non-voting)
check-tempest-dsvm-full-ceph	SUCCESS in 42m 13s (non-voting)

2. elastic-recheck notices and adds this to the  
Unclassified failed jobs page.

<http://status.openstack.org/elastic-recheck/data/uncategorized.html>

[All Pipelines](#)[Gate Pipeline](#)[Uncategorized](#)

Failures on this page are collected from all gate failures that don't match current elastic-recheck bug fingerprints. The crm114 links are logstash queries showing log messages that have been flagged as potential errors. More information on the system can be found [here](#)

## Unclassified failed jobs

Overall Categorization Rate: 66.9%

Total: 272 - Found: 182 = Unclassified: 90

Generated at: 2015-03-03T23:50 (View: [24 hours](#), [2 days](#), [7 days](#), [10 days](#))

[back to top](#)

### gate-tempest-dsvm-neutron-full : 16 Uncategorized Fails. 70.9% Classification Rate (55 Total Fails)

- 2015-02-26T21:48: <http://logs.openstack.org/40/122240/17/gate/gate-tempest-dsvm-neutron-full/28cbe9e/> : crm114
- 2015-02-25T19:59: <http://logs.openstack.org/57/138657/4/gate/gate-tempest-dsvm-neutron-full/304d6e0/>
- 2015-02-25T04:17: <http://logs.openstack.org/97/158897/1/gate/gate-tempest-dsvm-neutron-full/13734ae/> : crm114
- 2015-02-25T00:27: <http://logs.openstack.org/16/156516/3/gate/gate-tempest-dsvm-neutron-full/fc8eb04/> : crm114
- 2015-02-24T19:10: <http://logs.openstack.org/02/158202/1/gate/gate-tempest-dsvm-neutron-full/62413e7/>

- gate-tempest-dsvm-neutron-full (16)
- gate-cinder-python27 (8)
- gate-grenade-dsvm (5)
- gate-tempest-dsvm-neutron-src-debtcollector (5)
- gate-tempest-dsvm-full (4)
- gate-nova-tox-functional (3)
- gate-trove-functional-dsvm-mysql (3)
- gate-tempest-dsvm-postgres-full (3)
- gate-neutron-lbaas-python27 (3)
- gate-horizon-python27-django14 (2)
- gate-training-guides-tox-slides (2)
- gate-python-ironicclient-python34 (2)
- gate-tempest-dsvm-neutron-large-ops (2)
- gate-neutron-dsvm-functional (2)
- gate-tempest-dsvm-nova-v21-full (2)
- gate-nova-python27 (2)
- gate-tempest-dsvm-neutron-src-django\_openstack\_auth (1)
- gate-oslo.utils-python34 (1)
- gate-tempest-dsvm-ironic-pxe\_ssh (1)
- gate-python-manilaclient-python26 (1)
- gate-grenade-dsvm-partial-ncpu (1)
- gate-openstack-manuals-tox-doc-publish-checkbuild (1)

3. The QA team and developers review these unclassified failures by scouring log files to identify a pattern.

4. A bug report is created describing the problem and identifying the pattern found.

## 5. A Lucene query (fingerprint) is written to match this failure as closely as possible

query: >

```
message:"Timeout reached while waiting for callback for node" AND  
tags:"screen-ir-cond.txt"
```

6. A patch is submitted against the elastic-recheck repository.

This gets reviewed and merged.

<https://git.openstack.org/cgit/openstack-infra/elastic-recheck/tree/queries>

7. elastic-recheck **monitors** logs and **notifies** patch submitters and QA when their patch has hit a known bug

# Developers are notified in their review

## Elastic Recheck

Feb 25 4:00 PM

Patch Set 8:

I noticed jenkins failed, I think you hit bug(s):

- check-grenade-dsvm: <https://bugs.launchpad.net/bugs/1365046>

If you believe we've correctly identified the failure, feel free to leave a 'recheck' comment to run the tests again. For more details on this and other bugs, please see <http://status.openstack.org/elastic-recheck/>

# QA team is notified on IRC

<openstackrecheck> openstack/nova change:  
<https://review.openstack.org/156957> failed because of: gate-grenade-dsvm-ironic-sideways: <https://bugs.launchpad.net/bugs/1425258>

# How it works

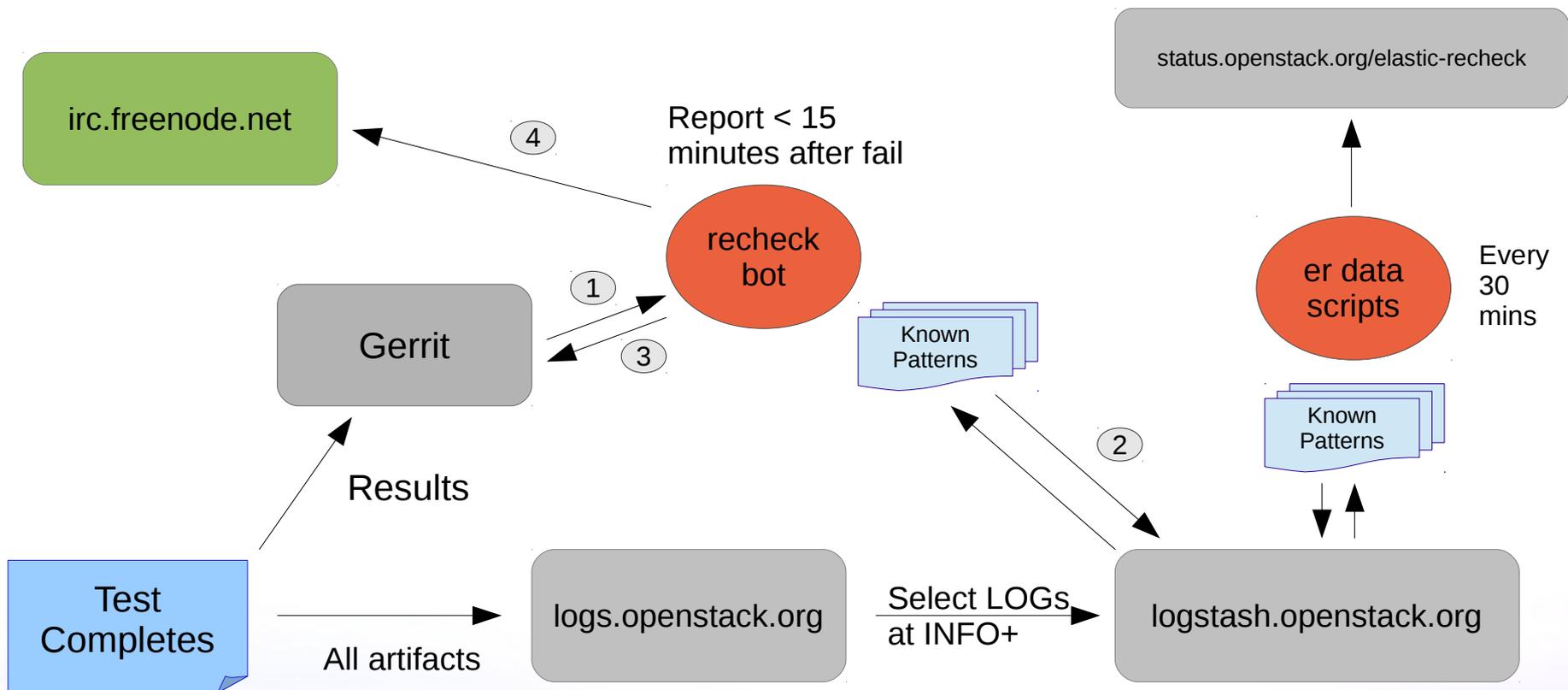


Diagram credit: Sean Dague

# Developers rejoice

They can re-run tests, confident that their change did not cause the failure.

# QA rejoices

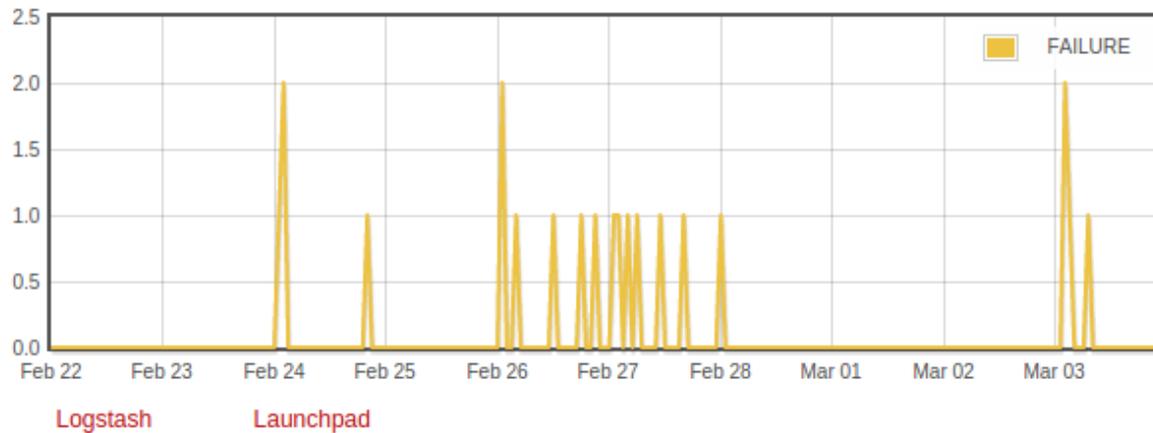
They can now identify bug trends!

- when it started
- is the bug fixed
- is it getting worse
- ...

Bug 1285323 - Services fail to shut down on the old side of Grenade

4 fails in 24 hrs / 21 fails in 10 days

Projects: (grenade - In Progress), (neutron - Incomplete)



# Systems administrators rejoice

## Slow cloud provider?

## Dependency issue crop up with a package update?

## Now we know!

# Drawbacks

- There's an art to finding the error in the logs that we want to write a query for.
- Diligence from the team is required in staying on top of bugs, new ones always crop up.
- Can still sometimes make overly broad queries that make reports less useful.
- Not all bugs are logged.

# Get the code

## Source

<https://git.openstack.org/cgit/openstack-infra/elastic-recheck/tree/>

## Documentation

<http://docs.openstack.org/infra/elastic-recheck/readme.html>

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