Testing at Scale
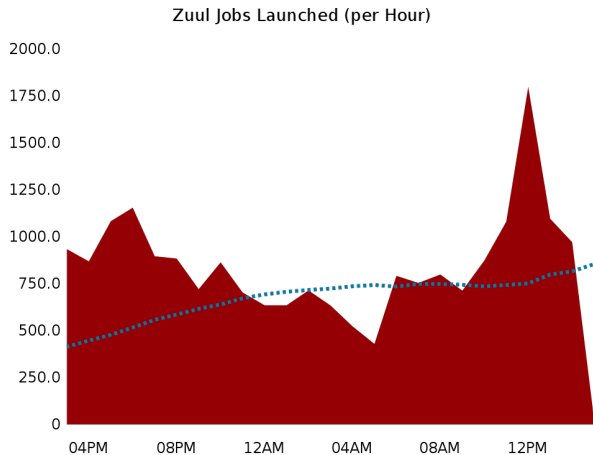
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https://github.com/andreafrittoli/testing_at_scale

OpenStack CI in Numbers

- ∼1500 contributors to Pike
- 6 Clouds + 2 run by OpenStac k Infra
- 1600+ repos in openstack(|-dev|-infra)
- 20k lines Zuul configuration

Zuul Jobs Launched (per Hour)

Source: Zuul, Graphite
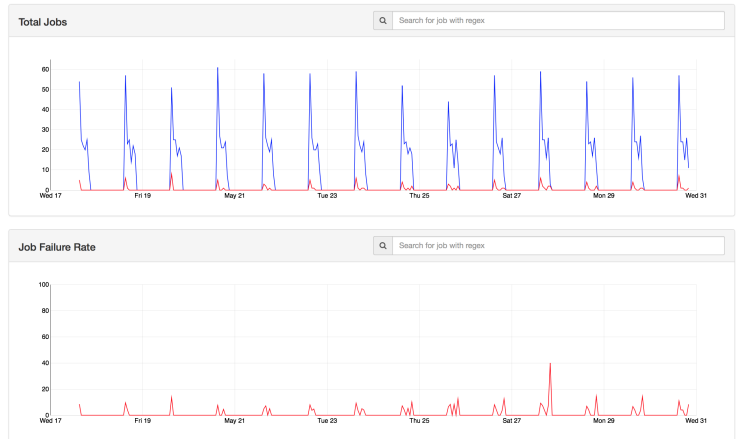
Testing OpenStack

Source: http://status.openstack.org/zuul
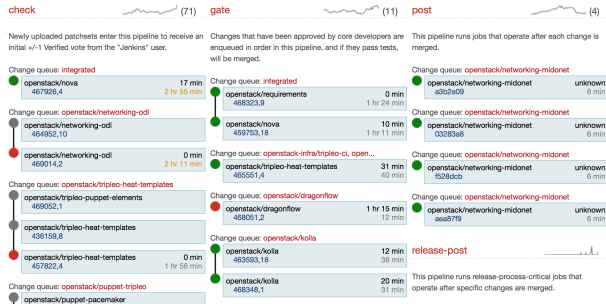
- ▶ Release ready master
- ▶ Check & Gate Pipelines
- ▶ Ephemeral test system

Beyond the gate

- Periodic tests
- Release jobs

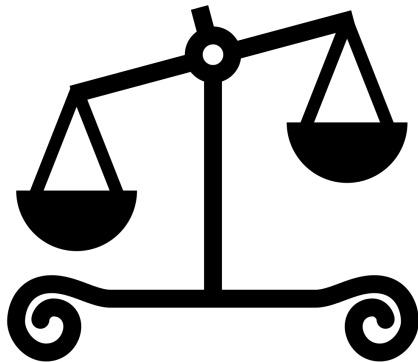Reference: status.openstack.org/openstack-health/

The unbalanced scale

- Core reviewers
- Horizontal teams
- Running CI

Not the scale I meant...

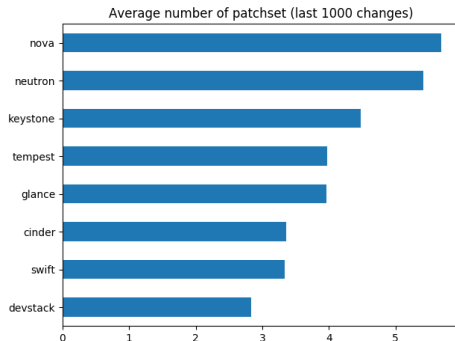- Commits
- # of Tests
- # of Configurations

Life as a contributor

Average gate jobs per project

Source: subunit2sql DB

Average number of patchset (last 1000 changes)
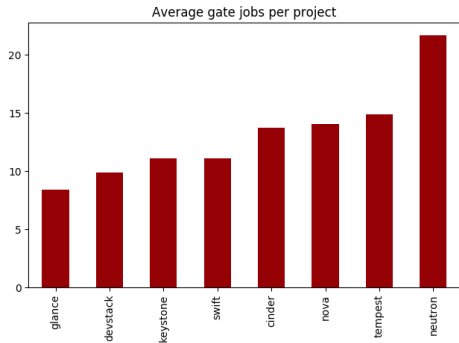
Source: Gerrit API

My day in reviews

- Change in devstack:

```
536    +    if [ -z "$VRIT_DRIVER" ]; then
537    +        # If there is not virt driver defined we assume nova is not installed
538    +        iniset $TEMPEST_CONFIG service_available nova "False"
539    +    fi
540    +
```

Source: https://review.openstack.org/468060

- CI reports all green
- Can you see the error?

Keep the gate flowing

- Number of services
- Service memory footprint
- Test load
- Libvirt instability under load
- Tempest bug in ssh test code
- Vanilla database configuration

Test failure rate over 5 months (1 day rolling average)
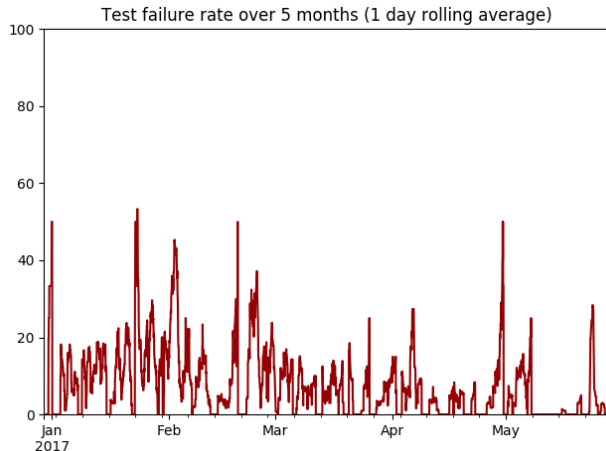
Source: Zuul, Graphite

Data!

- 50MB compressed logs for integration test run
  - node setup
  - system, service and test log files
  - system, service and test configuration
  - system metrics (dstat data)
  - libvirt logs
- Test result data
- Zuul, nodepool, gerrit event streams

Tools

- TBD

Deeper into data

- TBD

Playing with AI

- TBD

References

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Thank you!
Questions?