WhatTheStack?

Verify your Deployments using Tempest

Christian Schwede | @cschwede_de | Nick Barcet | @nijaba | Juno OpenStack Summit | May 2014
“Seamless Build & Delivery of Open Cloud Infrastructures”

People: 120+
Customers: 150+
Revenues: $11M
Top 10 Openstack Contributor

Locations:
- San Francisco
- Montréal
- Paris
- Bangalore
About us

Christian Schwede

- Developer @ eNovance
- Been working on OpenStack since 2012
- Swift core dev
- testing and automation specialist
- @cschwede_de / cschwede on IRC

Nick Barcet

- VP Products & Pre-Sales @ eNovance
- Been working on OpenStack since Austin
- Founded OpenStack Telemetry (aka Ceilometer)
- Travelling the world doing OpenStack
- @nijaba on irc & twitter
Intro

- Motivation
- Deployment testing
- Using Tempest for deployment testing
- Simplify usability: a web app
- The next step: whatthestack.org
- Outlook
Motivation

- Customers asking for deployment verification
- Testing requires a lot of manual work
- Idea: simple tool to test and summarize results
  - don’t reinvent - use Tempest
- Results might be overwhelming
Deployment testing - why?

- Ensure correct functionality
- Verify API behavior
- Detect missing features
- Report successful deployment
- Compare to other deployments
External testing

- web app: no installation required
  - usable by non-developers
- Executed by an independent vendor
- Results are shared easily
Using Tempest for testing
Challenges

● No image upload
  ○ Cirros missing? Select smallest available image

● API change between OpenStack releases
  ○ might break a whole lot of tests

● Customized backends
  ○ Authentication, Image service
Selecting tests

- User-executable tests only
- Skip duplicate (JSON/XML) & negative tests
- Test core functionality
  - Keystone: authenticate (obvious)
  - Nova: create/boot server, floating IPs, flavors
  - Swift: upload/download/delete objects
  - Glance: select image
● Keystone credentials ➔ tempest.conf
  ○ Smallest Nova image
  ○ Smallest Nova flavor
  ○ Network ID
● Execute subset of API tests
● Summarize results
devstack:~/devstack$ source openrc

devstack:~$ tempest-discover
Configuration written to /tmp/tempest_conf_0pJA1I
Set TEMPEST_CONFIG_DIR and TEMPEST_CONFIG to use this file:
export TEMPEST_CONFIG_DIR=/tmp
export TEMPEST_CONFIG=/tmp/tempest_conf_0pJA1I

devstack:~$ nosetests tempest.api.object_storage.test_object_services
............................
----------------------------------------------------------------------
Ran 28 tests in 4.325s

OK
Failed tests:
tempest.api.object_storage.test_container_sync

Successful tests:
tempest.api.object_storage.test_container_quotas
tempest.api.object_storage.test_container_services
tempest.api.object_storage.test_container_staticweb
tempest.api.object_storage.test_object_expiry
tempest.api.object_storage.test_object_services
tempest.api.object_storage.test_object_version

Object Storage (Swift): Grizzly (or later)
   Basic Object services
   Container Quota
   Object expiring
   Object versioning
Simplifying testing

- CLI - not for everyone
- Created simple web app
  a. Enter keystone credentials
  b. Wait until your tests finished
  c. View summary by services
- Let’s open it to the public!
The easiest way to test your OpenStack deployment

- **Discover**
  Verify which services are running on your cloud

- **Testing**
  Run a full stack of automated tests

- **Reporting**
  Get detailed reports including low-level test output

Easily launch Tempest Tests

- 100% automatic: no need to configure your test settings
- Always up to date: whatthestack.org uses the latest version of Tempest
- Dozens of tests

★ Fully compliant with latest OpenStack release
Configuration editor

Description
My OpenStack deployment

OpenStack credentials
Username
christian@enovance.com
Password
******
Keystone URL
https://keystone.localhost/v2.0

Select tenant name automatically

I accept the Terms of Use and read Good to know before starting test

Delete
Cancel
Save
### Test results for devstack: 100 % successful (25/25 tests)

<table>
<thead>
<tr>
<th>Service</th>
<th>Tests Passed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cinder</td>
<td>6</td>
</tr>
<tr>
<td>Glance</td>
<td>4</td>
</tr>
<tr>
<td>Keystone</td>
<td>1</td>
</tr>
<tr>
<td>Neutron</td>
<td>2</td>
</tr>
<tr>
<td>Nova</td>
<td>7</td>
</tr>
<tr>
<td>Swift</td>
<td>5</td>
</tr>
</tbody>
</table>
Swift details for devstack test on Jan. 7, 2014, 5:44 p.m.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Status</th>
<th>Test Reference</th>
<th>Test Logs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static web middleware</td>
<td>✔️</td>
<td>test_tempest.api.object_storage.test_container_staticweb</td>
<td>Test logs</td>
</tr>
<tr>
<td>Versioned object support</td>
<td>✔️</td>
<td>test_tempest.api.object_storage.test_object_version</td>
<td>Test logs</td>
</tr>
<tr>
<td>Container quota middleware</td>
<td>✔️</td>
<td>test_tempest.api.object_storage.test_container_quotas</td>
<td>Test logs</td>
</tr>
<tr>
<td>Basic object actions</td>
<td>✔️</td>
<td>test_tempest.api.object_storage.test_object_services</td>
<td>Test logs</td>
</tr>
<tr>
<td>Basic container actions</td>
<td>✔️</td>
<td>test_tempest.api.object_storage.test_container_services</td>
<td>Test logs</td>
</tr>
</tbody>
</table>
Swift details for My Cloud test on May 8, 2014, 11:13 a.m.

Success 2  Error 4

**Basic object actions**
Test: tempest.api.object_storage.test_object_services

**Basic container actions**
Test: tempest.api.object_storage.test_container_services
Swift details for My Cloud test on May 8, 2014, 11:13 a.m.

<table>
<thead>
<tr>
<th>Test Case</th>
<th>Test Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container quota middleware</td>
<td>tempest.api.object_storage.test_container_quotas</td>
</tr>
<tr>
<td>Temporary URL middleware</td>
<td>tempest.api.object_storage.test_object_temp_url</td>
</tr>
<tr>
<td>Static web middleware</td>
<td>tempest.api.object_storage.test_container_staticweb</td>
</tr>
<tr>
<td>Versioned object support</td>
<td>tempest.api.object_storage.test_object_version</td>
</tr>
</tbody>
</table>
Swift test log for My Cloud test on May 8, 2014, 11:13 a.m.

Test: tempest.api.object_storage.test_container_quotas

---

FAIL: tempest.api.object_storage.test_container_quotas.ContainerQuotasTest.test_upload_large_object[gate,smoke]

_**_StringException: pythonlogging''_**_'':

```plaintext
2014-05-08 11:14:52,033 Request (ContainerQuotasTest:setUp): 201 PUT http://mycloud.local:8080/v1/AUTH_76bd1d43cacf146d9ae59c74a1e7b04df/TestContainer-1631969758 0.253s
2014-05-08 11:14:52,143 Request (ContainerQuotasTest:setUp): 204 POST http://mycloud.local:8080/v1/AUTH_76bd1d43cacf146d9ae59c74a1e7b04df/TestContainer-1631969758 0.105s
2014-05-08 11:14:52,255 Request (ContainerQuotasTest:test_upload_large_object): 204 HEAD http://mycloud.local:8080/v1/AUTH_76bd1d43cacf146d9ae59c74a1e7b04df/TestContainer-1631969758 0.110s
2014-05-08 11:14:52,312 Request (ContainerQuotasTest:test_upload_large_object): 201 PUT http://mycloud.local:8080/v1/AUTH_76bd1d43cacf146d9ae59c74a1e7b04df/TestContainer-1631969758/TestObject-384934890 0.054s
2014-05-08 11:14:52,392 Request (ContainerQuotasTest:tearDown): 200 GET http://mycloud.local:8080/v1/AUTH_76bd1d43cacf146d9ae59c74a1e7b04df/TestContainer-1631969758?limit=9999&format=json 0.076s
2014-05-08 11:14:52,641 Request (ContainerQuotasTest:tearDown): 204 DELETE http://mycloud.local:8080/v1/AUTH_76bd1d43cacf146d9ae59c74a1e7b04df/TestContainer-1631969758/TestObject-384934890 0.246s
2014-05-08 11:14:52,888 Request (ContainerQuotasTest:tearDown): 204 DELETE http://mycloud.local:8080/v1/AUTH_76bd1d43cacf146d9ae59c74a1e7b04df/TestContainer-1631969758 0.245s
```
Behind the scenes

Webserver

User

Credentials

Encryption (Public Key)

MQ

DB

Worker

Tempest

Decryption (Private Key)
Outlook

- Community works on core definition
- Looking forward to integrate upcoming test definitions
- Continue contribution to Tempest
● Register yourself on www.whatthestack.org
● whatthestack is hosted by eNovance
  ○ Tests are executed queued
  ○ Limited numbers of stored test results and tests
● Give us Feedback
● github.com/enovance/tempest-report
THANK YOU / MERCI