RDO and CentOS

Ideas for more collaboration

http://www.pixelbeat.org/talks/rdo_centos/

Pádraig Brady – Red Hat
Agenda

• OpenStack Overview
• RDO Overview
• Thoughts for more CentOS collaboration
About Me

Open Source user for 13 years
Python user for 11 years
Gnu coreutils maintainer for 5 years
Red Hatter for 2 years
OpenStack Nova core member for 1.5 years
RDO packaging lead for 1.5 years
What is OpenStack

- IaaS platform (like AWS)
- Open Source
  - unlike VMware, AWS, Compute Engine etc.
  - No closed components
- Leverages lots of existing Linux technologies
- Written mainly in 2.6 <= python < 3.0
- 3 years old
- Very large project
Havana Release Stats
(6 month release cycle)

- bitergia havana analysis
- Commits: 13,624 (out of 47K total)
  - Excluding merge commits and bots etc.
  - About 3 per hour
- Source code reviews: 21,228
- Developers: 923
- Organizations: 150
OpenStack is still accelerating

- 10K proposed commits in the last 60 days
- New OpenStack projects in the pipeline
  - Savanna (hadoop)
  - Marconi (SQS, SNS like)
  - Trove (DBaaS)
  - Ironic (baremetal provisioning)
  - Tripleo (OpenStack on OpenStack)
Python projects used (Icehouse milestone 2)

$ curl https://raw.github.com/openstack/requirements/master/global-requirements.txt |
  sed '/^ *#/d; /^ */d; s/ \?[^<=#].*//; /python-.*client/d' | pr -T6 -w80 | expand

alembic  greenlet  os-collect-c  pyudev  configobj  pep8
amqplib  happybase  os-refresh-c  PyYAML  coverage  proboscis
anyjson  httplib2  pam  qpid-python  discover  psycopg2
argparse  iso8601  paramiko  requests  django-nose  pyflakes
Babel  Jinja2  passlib  Routes  docutils  pylint
boto  jsonpatch  Paste  rtslib-fb  feedparser  pysendfile
cffi  jsonpath-rw  PasteDeploy  simplejson  fixtures  pysqlite
cliff  jsonrpclib  pbr  six  flake8  python-ldap
coinor.pulp  jsonschema  pecan  socketstorna  hacking  pyzmq
ddt  kazoo  pip  SQLAlchemy  hgtools  pyzmq
dogpile.cache  lesscpy  PrettyTable  sqlalchemy-m  hp3parclient  redis
diskimage-builder  kombu  psutil  stevedore  httpretty  selenium
Django  lockfile  pyasn1  suds  keyring  sphinx
django-boostrx  lxml  pycadf  taskflow  mock  sphinxcontrib
django_compressor  msgpack-python  pycrypto  tripleo-imag  mox  sphinxcontrib
django_opensources  netaddr  pyghmi  warlock  mox3  sphinxcontrib
dnspython  netifaces  pymongo  WebOb  MySQL-python  oslo.sphinx
extras  oauthlib  pyOpenSSL websocketify  nose  testrepository
eventlet  ordereddict  pyparsing  wheel  nose-exclude  testresource
extras  osalloconfig  pysnmp  wsgiref  nosehtmloutput  testscenario
falcon  oslo.config  pystache  WSME  nosexitcover  testtools
Flask  oslo.messaging  python-memcache  xattr  openstack-do  unittest2
futures  oslo.rootwra  python-memcache  xattr  openstack-do  unittest2
gear  os-apply-con  pytz  cliff-tablib  openstack.no  WebTest
Project Packaging

- Given the number of parts and options there is a large gain with consuming through distros
  - Often allows tweaks in the right place rather than workarounds in the wrong place
  - Leverages lots of logic and experience in testing, provisioning and upgrades
- BTW distro package deps are a good way to get overall position and leverage of a project

```bash
yum install rpmlorphan graphviz
rpmdep -dot openstack-deps.dot \
  openstack-{nova,glance,cinder,ceilometer,dashboard,keystone,neutron}
dot -Tsvg openstack-deps.dot -o openstack-deps.svg
```
OpenStack history on EL

- Essex ... Icehouse
- From a packaging viewpoint
OpenStack Essex/Folsom EL Repos

Fedora
- git
- koji

Fedora
- Essex F17
- Folsom F18

EL

EPEL
- Essex EL6
- Folsom EL6
Issues with OpenStack in EPEL

- Upgrade is not seamless yet
  - Getting a lot better than Essex -> Folsom was but..
- All EL OpenStack users may not want to rebase
  - At least not at the same time
- Too restrictive for new dependencies
  - Parallel install packages awkward
  - OpenStack is large as we've seen so lots of potential overlap/conflict with general package set
  - Increasingly full compat is less of a requirement
  - With move to cloud and more ephemeral hosts
So enter RDO

- RDO is a **community** of people using and deploying OpenStack on Red Hat Enterprise Linux, Fedora and distributions derived from these (such as CentOS, Scientific Linux, ...)

- [http://openstack.redhat.com/](http://openstack.redhat.com/)
  - 3 step install process for CentOS etc.

- Part of that are separate more flexible repos
  - Essentially leveraging the fact that OpenStack installs are almost always dedicated hosts
  - Hence global compat is desired but not required
  - Reference thirdparty repos like puppetlabs.org
OpenStack Grizzly/Havana EL Repos

Fedora
git

Fedora
koji

EL

EPEL

RDO

Grizzly EL6 | Havana EL6
Grizzly F18 | Havana F19
Grizzly F19 | Havana F20
Changes for Icehouse EL7

- More detachment from EPEL7
  - No OpenStack specific dependencies in EPEL7
- OpenStack **build** dependencies
  - Added to EPEL7 to allow all builds in Koji
  - There are some openstack related but not openstack specific
    - python-pbr
    - python-testtools
    - python-pip
    - python-mimeparse
    - python-extras
      - [python-testtools]
    - python-oslo-sphinx
    - crudini
- OpenStack specific packages
  - Koji scratch builds for now (copied to RDO)
Changes for Icehouse EL7

- OpenStack specific runtime dependencies
  - Koji scratch builds for now (copied to RDO)
  - python-oslo-{config,rootwrap,messaging}
- New non OpenStack specific runtime deps
  - Added to EPEL7
- Updated non OpenStack specific runtime deps
  - python-six-1.4.1-1.el7 (newer than EL7)
  - Can't go in EPEL7
  - Koji scratch builds for now
  - Candidate for an “update repo” for progression to base
  - Similar to updated kernel used with 6.4 which migrated to 6.5 base
Possible CentOS structure to help

- git repos and buildroots to handle the koji scratch build cases above
- Shared repos, like “cloud sig repo”
  - Instance
    - Cloud-init
  - Infrastructure
    - Shared puppet
    - Overlap with other sigs (java, python?)
- I can see the need for packages that are not compatible with all other packages in the major EL release. (CentOS next?)
- More usually I can see the need for packages that are updates for existing packages, which may be candidates for future updates in EPEL or even an EL minor release (CentOS updates?)
Possible shared CentOS repos

- EL
- EPEL
- CentOS Updates
- CentOS Next
- OpenStack
- OpenShift
- CloudStack
Notes on CentOS repos

- Packages would aim to move up to increase sharing and remove duplication
- Updates for existing packages would provide useful feedback for update candidates in base
- New packages are only new once, and hence really have the same contraints as “Updates”
- Tracking multiple sigs using new packages would increase pressure for those packages to move up
- Should aim to minimize levels to avoid admin overhead and to ease the flow of packages up