

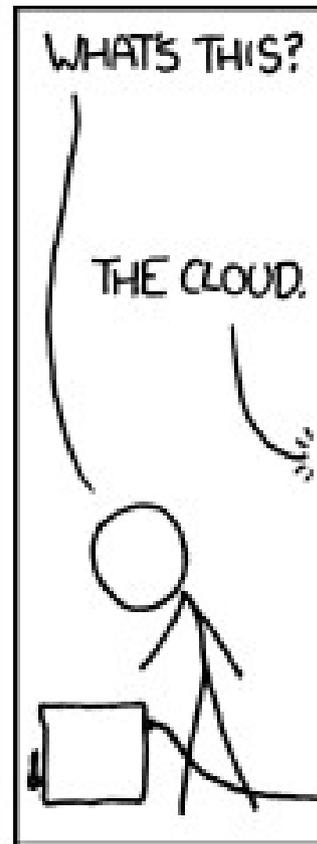
OpenStack

Le cloud libre

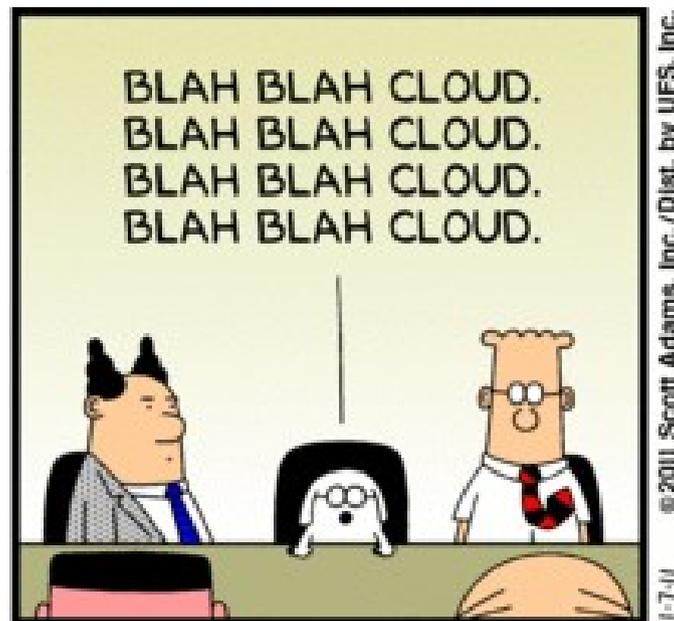
Thierry Carrez (@tcarrez)
Release Manager, OpenStack



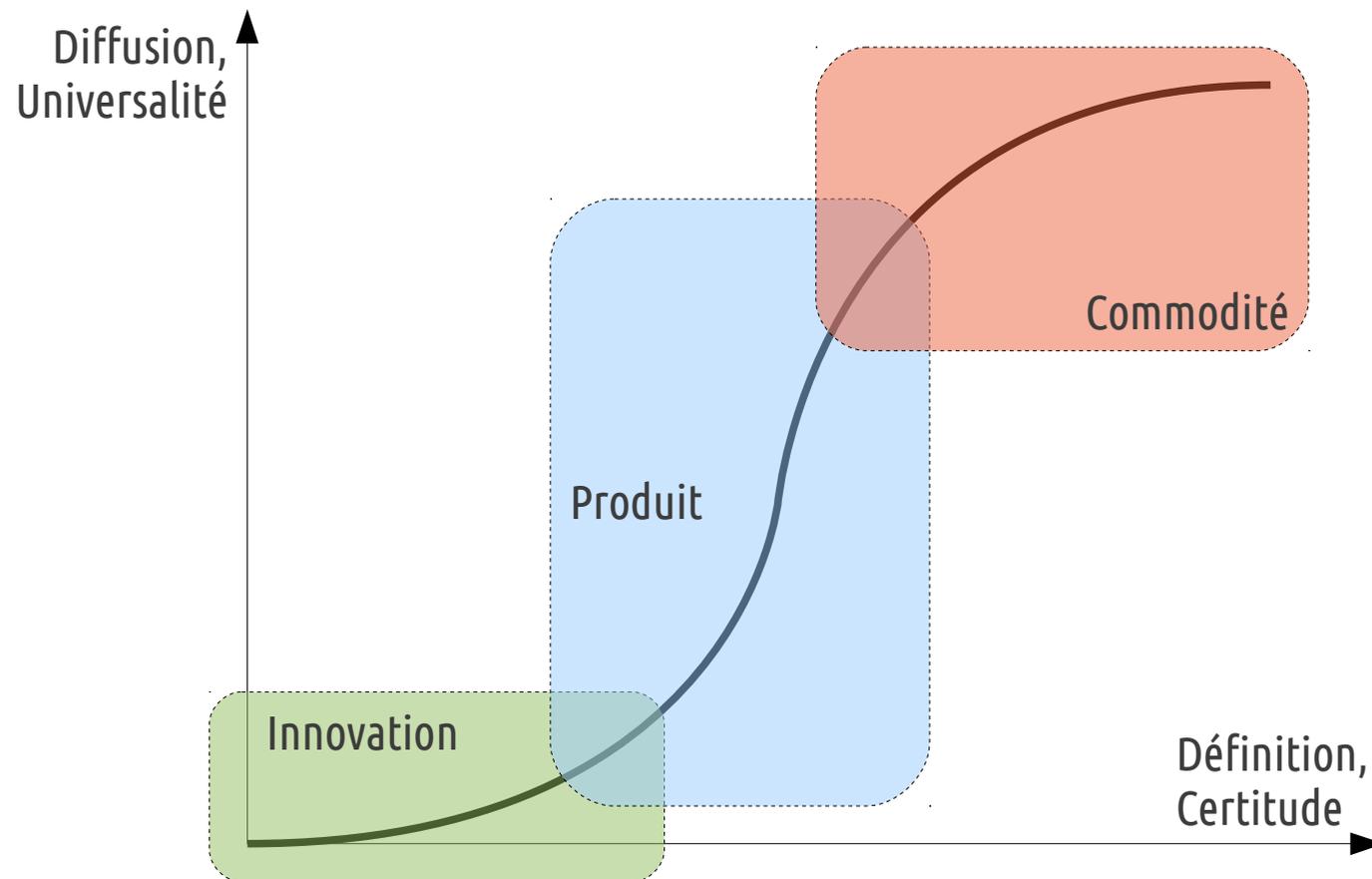
Cloud ?



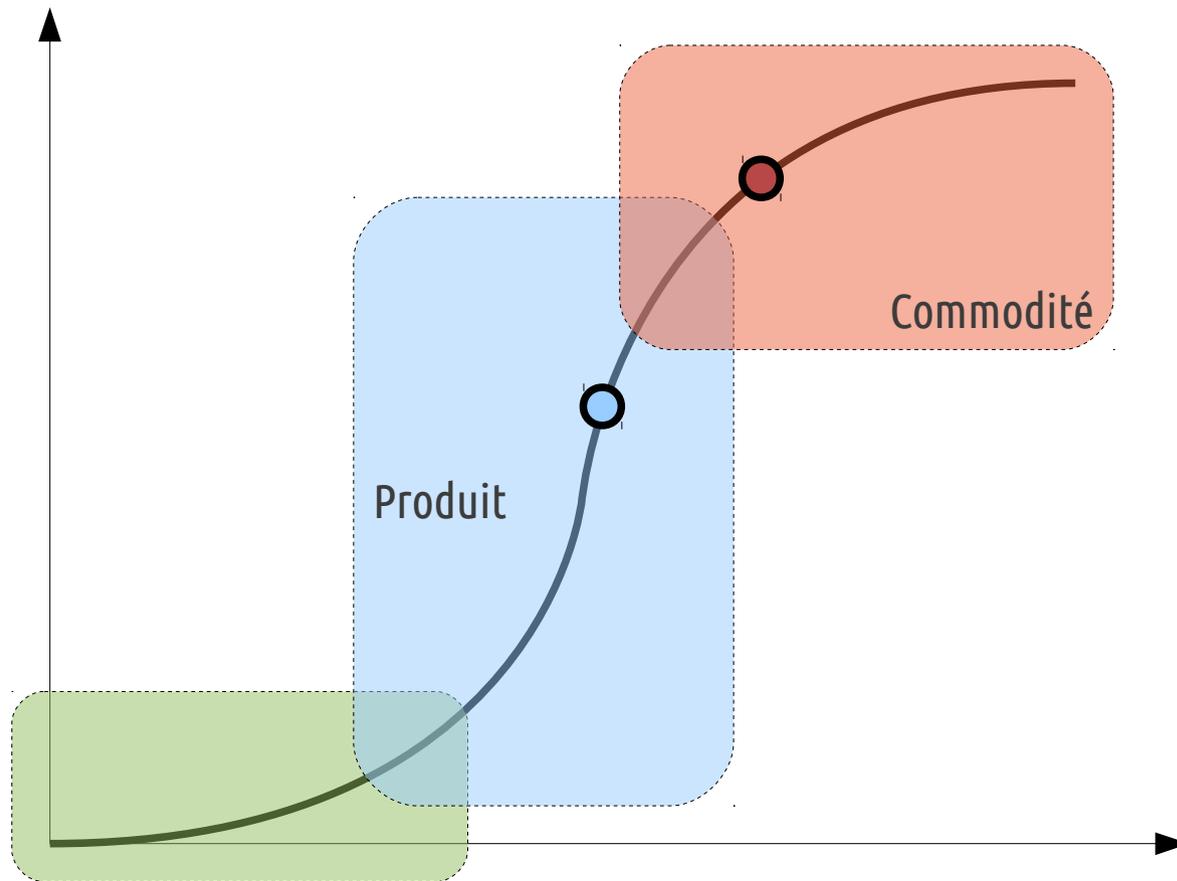
Marketing



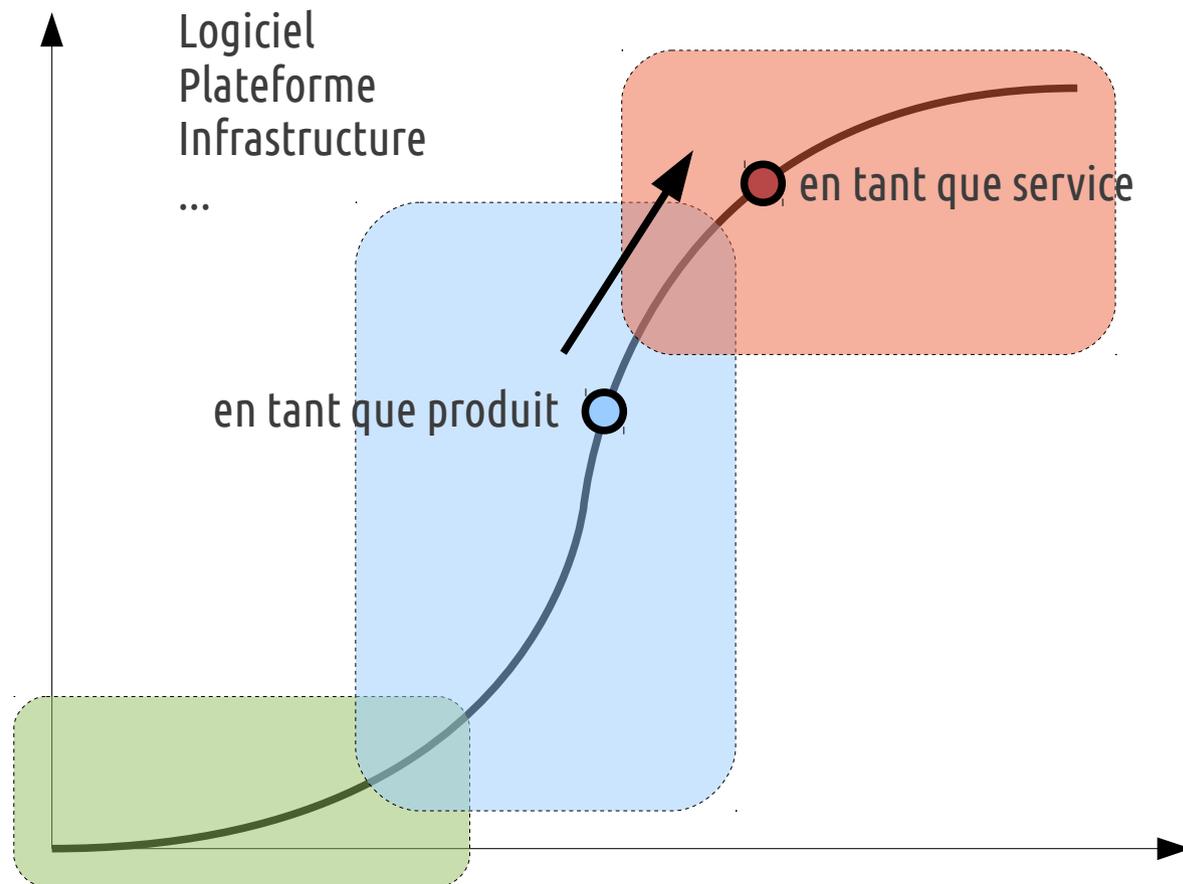
Evolution des technologies



Evolution de l'informatique



“Cloud”: une transition



Services pour client finaux

Logiciel en tant que service (SaaS)



Services pour client finaux

Stockage et streaming en ligne



Services d'infrastructure

Plateformes de déploiement (PaaS)

Google™
App Engine



heroku

ep.io
smart python hosting



Windows Azure™

Services d'infrastructure

Ressources brutes de calcul ou de stockage (IaaS)



SaaS

PaaS

IaaS

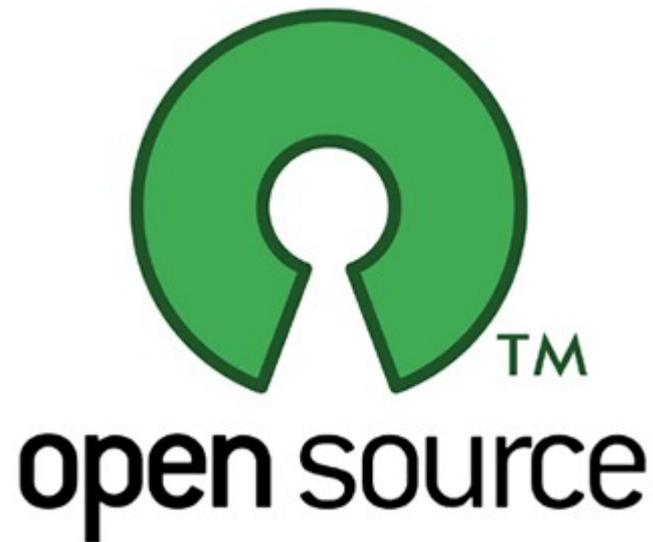
OS / Matériel



TM

open source





- ♦ Innovation
- ♦ Réduction des coûts de développement
- ♦ Réduction des coûts de maintenance
- ♦ Interopérabilité (pas de lock-in)
- ♦ Standardisation

Le cloud open source

Logiciels
Pour faire
son propre PaaS



Logiciels
Pour faire
son propre IaaS



OpenNebula

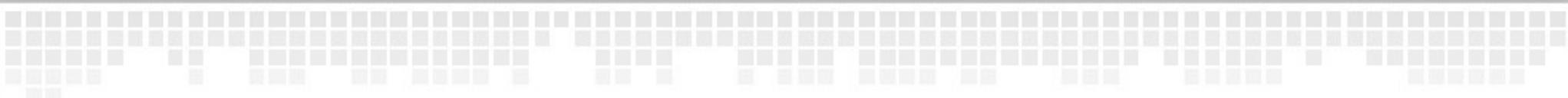
EUCALYPTUS

cloudstack

Matériel



OPEN
Compute Project



OpenStack

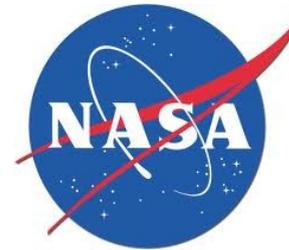
- ◆ Projet open source commun
- ◆ Logiciel pour faire votre propre IaaS
- ◆ Déploiement public ou privé

- ◆ Moteur de la transition « cloud »
- ◆ Interopérabilité des implémentations
- ◆ Standardisation

La g n se



- ◆ Cloud servers
- ◆ Cloud files
- ◆ Open source



- ◆ NovaCC
- ◆ Open source



- ◆ Nova (compute)
- ◆ Swift (storage)

Code ouvert

nova / nova / api / ec2 / cloud.py 

Fork and edit this file

 100644 | 1708 lines (1505 sloc) | 73.014 kb

[raw](#) | [blame](#) | [history](#)

```
1 # vim: tabstop=4 shiftwidth=4 softtabstop=4
2
3 # Copyright 2010 United States Government as represented by the
4 # Administrator of the National Aeronautics and Space Administration.
5 # All Rights Reserved.
6 #
7 # Licensed under the Apache License, Version 2.0 (the "License"); you may
8 # not use this file except in compliance with the License. You may obtain
9 # a copy of the License at
10 #
11 # http://www.apache.org/licenses/LICENSE-2.0
12 #
13 # Unless required by applicable law or agreed to in writing, software
14 # distributed under the License is distributed on an "AS IS" BASIS, WITHOUT
15 # WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the
16 # License for the specific language governing permissions and limitations
17 # under the License.
18
19 """
20 Cloud Controller: Implementation of EC2 REST API calls, which are
21 dispatched to other nodes via AMQP RPC. State is via distributed
22 datastore.
23 """
24
25 import base64
26 import netaddr
```

Design ouvert



Developpement ouvert

OpenStack Compute (Nova)

Overview Code Bugs Blueprints Translations Answers

OpenStack Compute (nova) essex-3 "E3"

OpenStack Compute (nova) » essex-3 "E3"

Milestone information

Project: OpenStack Compute (nova) **essex**

Version: essex-3

Expected: 2012-01-26 [Create release](#)

Active: Yes. Drivers can target bugs and blueprints to this milestone.

Series: essex

Code name: E3

Activities

Assigned to you: No blueprints or bugs assigned to you.

Assignees: 1 [Anthony Young](#), 1 [Duncan McGregor](#), 1 [Jake Dahn](#), 1 [Vish Ishaya](#), 1 [Vladimir Popovski](#), 1 [fred yang](#)

Blueprints: 2 Unknown, 2 Not started, 2 Needs Code Review

Bugs: No bugs are targeted to this milestone.

6 blueprints and 0 bugs targeted

Blueprint	Priority	Assignee
Interim AuthZ service for Nova	Essential	Vish Ishaya
Volume type aware scheduler	Essential	Vladimir Popovski
Make console log available through osapi	Medium	Jake Dahn
ZeroMQ Based RPC Driver	Low	Duncan McGregor
Cleanup for vnc console	Low	Anthony Young
Trusted Computing pools	Low	fred yang

Change I17c92e8a: Fixes LP Bug#850377

Change-Id: I17c92e8ab37ef116d13e7b87719af4c0988450f9 Fixes LP [Bug#850377](#)

Owner: [Jay Pipes](#)

Project: [openstack/glance](#)

Branch: [master](#)

Topic: [bug/850377](#)

Uploaded: Nov 16, 2011 6:59 AM

Updated: Nov 16, 2011 9:42 PM

Status: Review in Progress

Reworks Keystone functional tests to not depend on a local Keystone (or Glance client) installation path.

Adds deps to tools/pip-requires with comments on why they are needed for installing Keystone via pip.

Change-Id: [I17c92e8ab37ef116d13e7b87719af4c0988450f9](#)

[Permalink](#)

Reviewer	Verified	Code Review
Kevin L. Mitchell		+1
Rick Harris		

- Need Verified +1 (Verified)
- Need Code Review +2 (Looks good to me, approved)

Dependencies

Old Version History: Base

Patch Set 1 [7a3ed08b2ea65d13d864d2f2771fe52f56876203](#) [\[nitweb\]](#)

Author: [Jay Pipes](#) <jaypipes@gmail.com> Nov 16, 2011 6:57 AM

Committer: [Jay Pipes](#) <jaypipes@gmail.com> Nov 16, 2011 6:57 AM

Parent(s): [a805a281f4c7811ad0aa12dc05f693e6a4e0cc5a](#) Merge "Fixes LP Bug#885341 - Test failure in TestImageCacheManageXattr"

Download: [checkout](#) | [pull](#) | [cherry-pick](#) | [patch](#) | [Anonymous HTTP](#) | [SSH](#) | [HTTP](#)

git fetch <https://ttx@review.openstack.org/p/openstack/glance refs/changes/56/1656/1> && git format-patch -1 --stdout FETCH_HEAD

File Path	Comments	Size	Diff	Reviewed
Commit Message				Unified
glance/tests/functional/_init.py		+1, -0	Side-by-Side	Unified
glance/tests/functional/keystone_utils.py	1 comment	+9, -49	Side-by-Side	Unified
tools/pip-requires		+15, -0	Side-by-Side	Unified
		+25, -49		

Comments [Expand Recent](#) | [Expand All](#) | [Collapse All](#)

Kevin L. Mitchell Patch Set 1: Looks good to me, but someone else must approve (1 inline ... Nov 16

Rick Harris Nov 16

Patch Set 1:

Looks good; agree w/ Vek's whitespace nit.

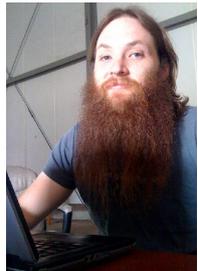
Communauté ouverte



```
21:07:08 <ttx> Raise your hand if you have questions on Swift...
21:07:35 <ttx> #topic Glance status
21:07:40 <ttx> jaypipes: o/
21:07:56 <ttx> jaypipes: I'd like to review the missed features and decide between deferring to Essex and
granting a post-D4 exception
21:08:18 <ttx> (The idea being to minimize the changes as we get nearer to release. The Essex gates will open
on September 8, so it's not that far away for deferred features)
21:08:22 <jaypipes> ttx: SSL support has a branch proposed but I'm stuck on getting a working functional test
case for it...
21:08:39 <ttx> what about Add filter for changes-since (changes-since-filter) ?
21:08:42 <jaypipes> ttx: so I'd like that feature to go in.
21:08:48 <jaypipes> ttx: can go to Essex.
21:08:55 <ttx> ok, willdefer
21:09:10 <ttx> jaypipes: You also have 13 D4-targeted bugs, which sounds like a lot to fix in two days.
21:09:25 <ttx> ould you come up with a more reasonable "must-have-for-D4" list and target the others to RBP ?
21:09:30 <ttx> Could*
21:09:48 <ttx> I'd like to know what I should be waiting on, if possible
21:10:08 <jaypipes> ttx: the system-controlled/user-controlled properties will need to go into RBP
21:10:22 <ttx> jaypipes: oh, missed that one
21:10:28 <jaypipes> ttx: and yes on the bugs list. in process of writing a status update to the ML on glance
bugs to focus on
21:10:54 <ttx> jaypipes: any eta for system-controlled/user-controlled properties ?
21:12:06 <jaypipes> ttx: depends on when Vek gets the functional test cases done for keystone. He's made good
progress with _cerberus_ so far. Expect to see that bug closed soon (https://bugs.launchpad.net/bugs/825419)
21:12:07 <uvirtbot> Launchpad bug 825419 in glance "Functional tests for private and shared images"
[High,Confirmed]
21:12:15 <jaypipes> ttx: that bug is the reason for that blueprint being in Blocked.
21:12:37 <ttx> jaypipes: ok. You can add the tests in D4, btw, as a bugfix branch.
21:12:45 <ttx> jaypipes: Other announcements/comments ?
21:13:06 <jaypipes> ttx: thinking...
```

Gouvernance

Project Policy Board (PPB)



Developpeurs

élisent



Project technical leads (PTLs)
(un par projet « core », soit 5)



« Communauté »
élargie

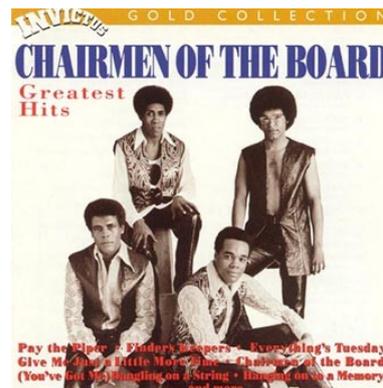
élit



Membres élus par la communauté
(5)



choisit



Membres choisis par Rackspace (4)

Un projet jeune



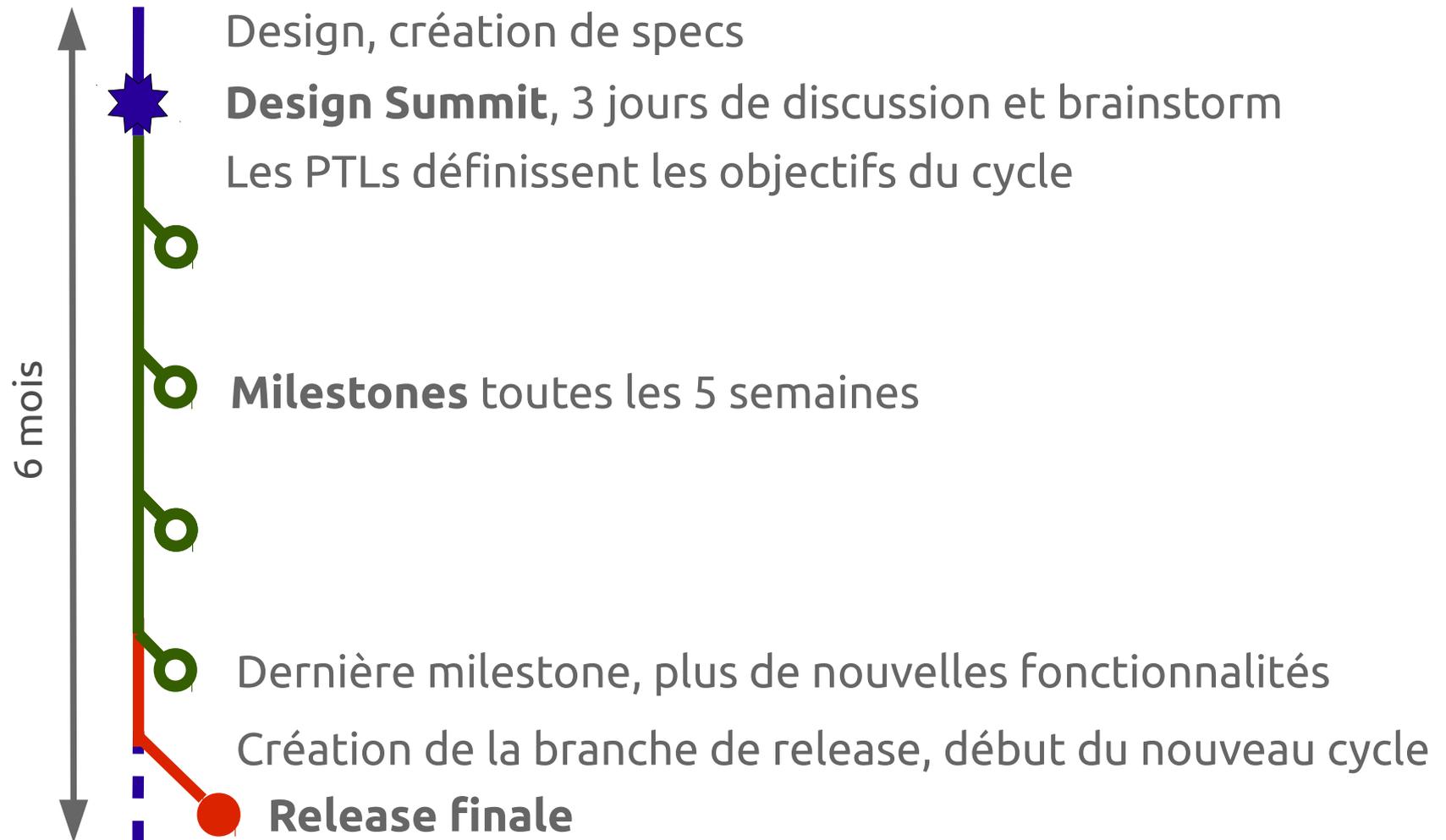
170 développeurs



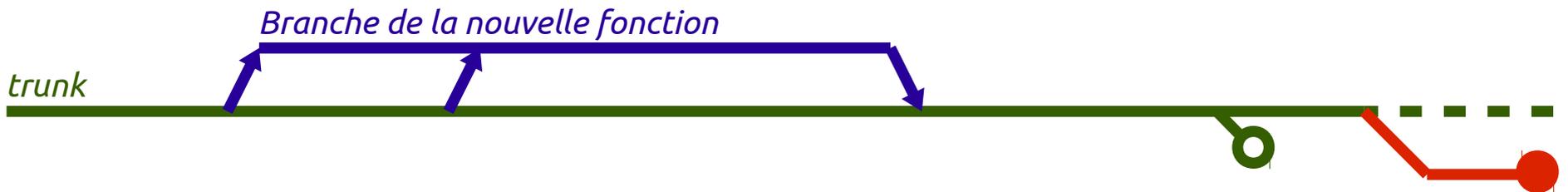
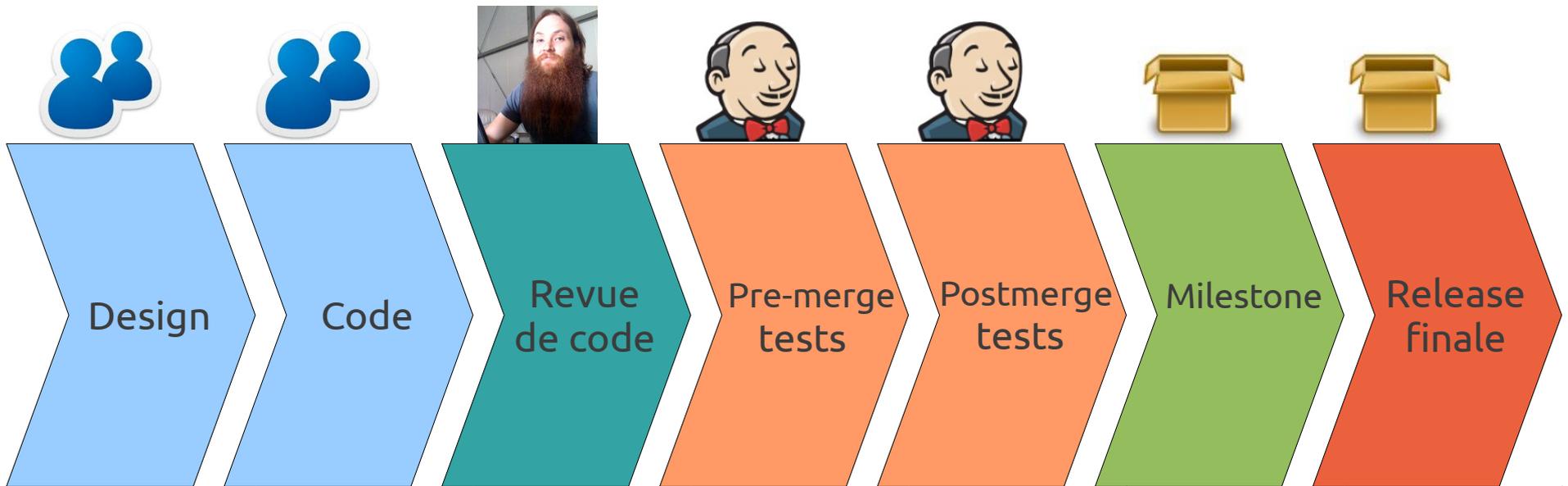
CANONICAL



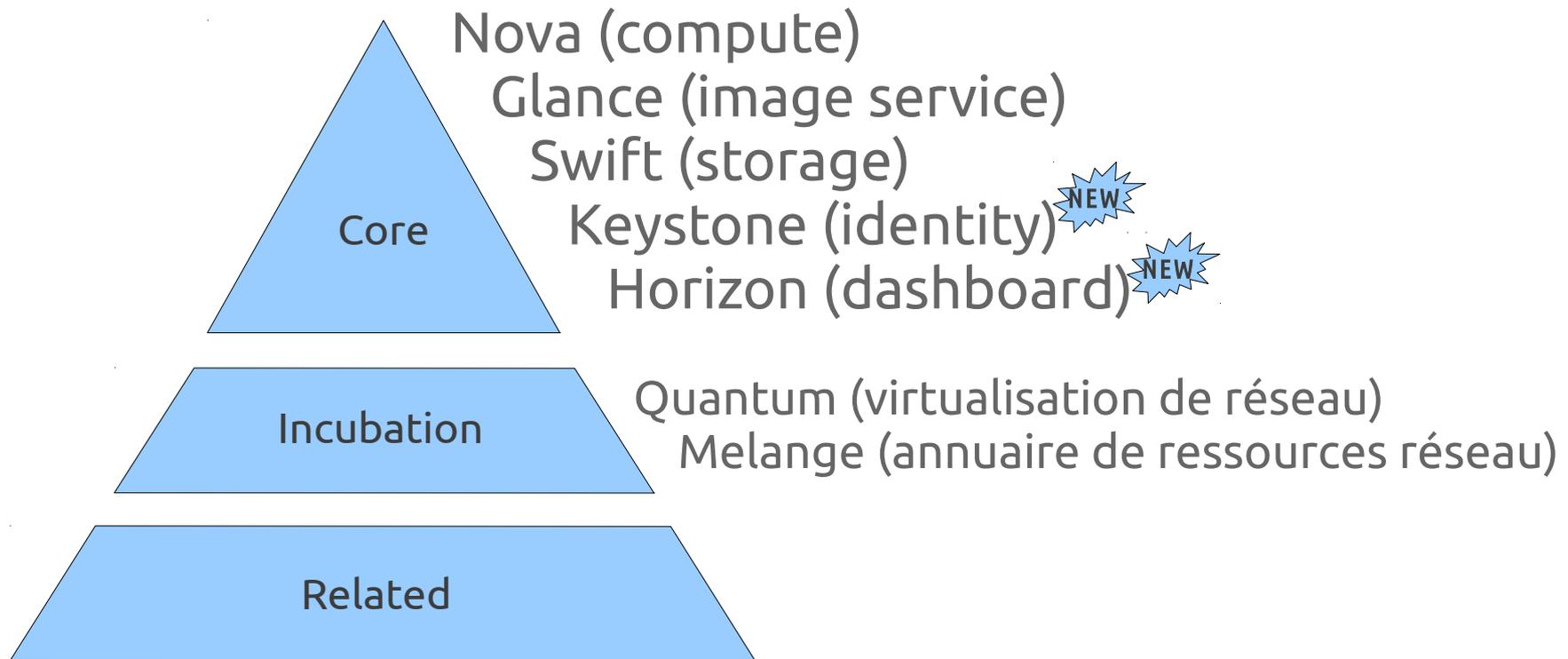
Cycle de developpement

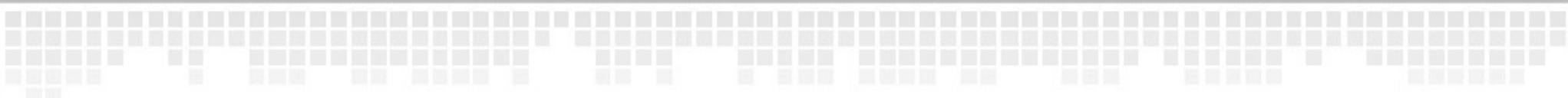


Voyage d'une fonction nouvelle



Les projets OpenStack

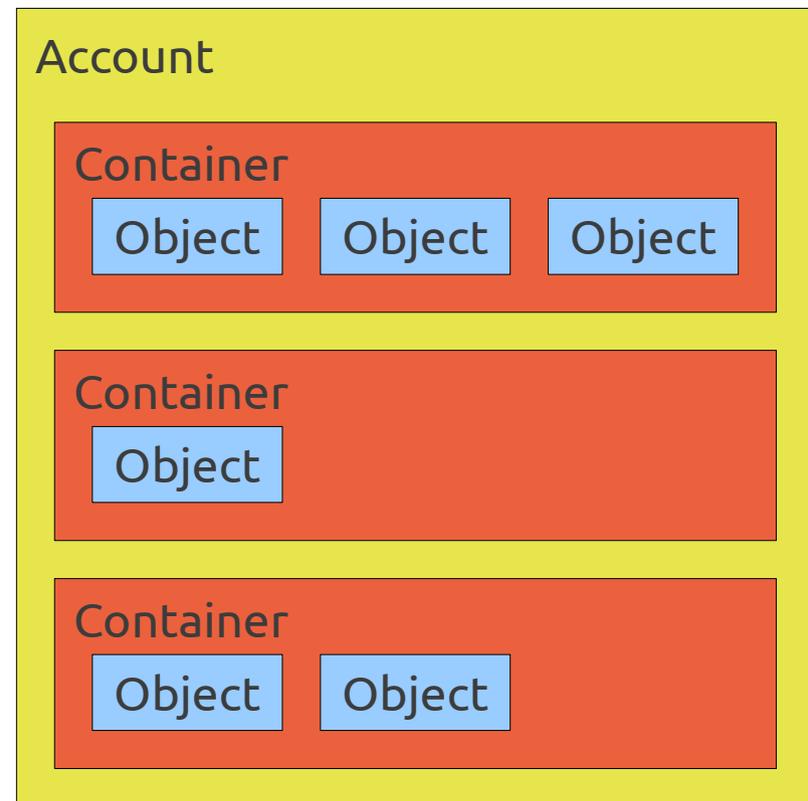
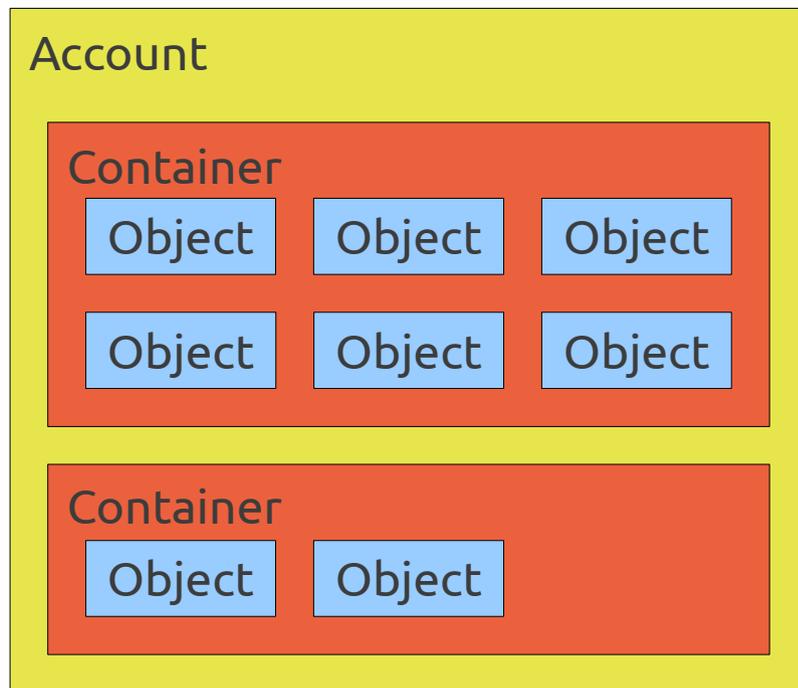




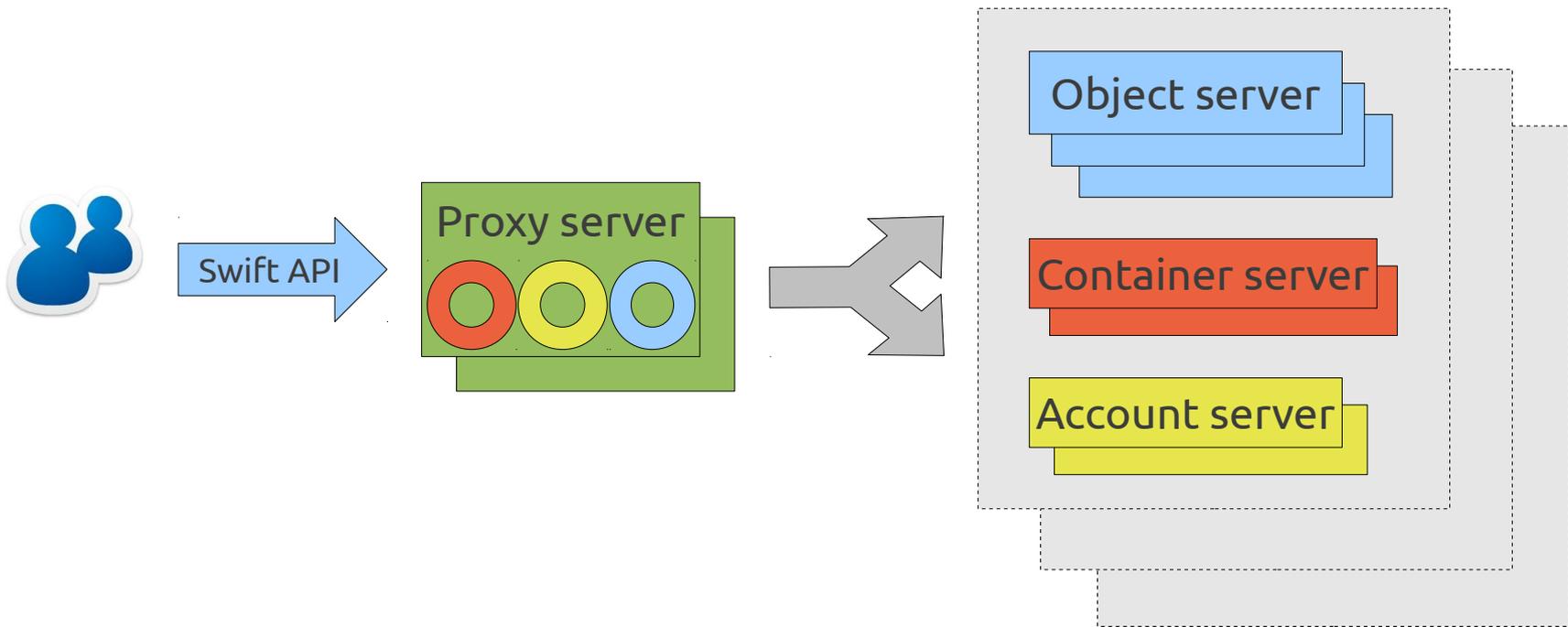
Swift (OpenStack Object Storage)

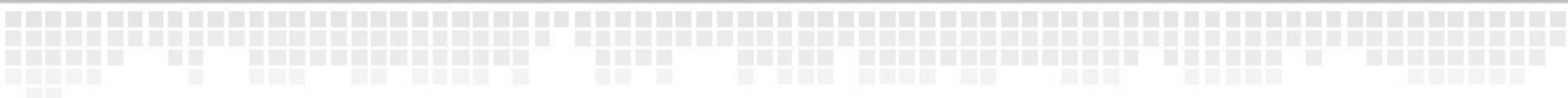
- Stockage d'objets
- Interface RESTful
- Pas de limite de taille d'objet
- Données répliquées 3x (« zones »)
- Stable et déployé en production

Objets, conteneurs, comptes



Swift: Architecture





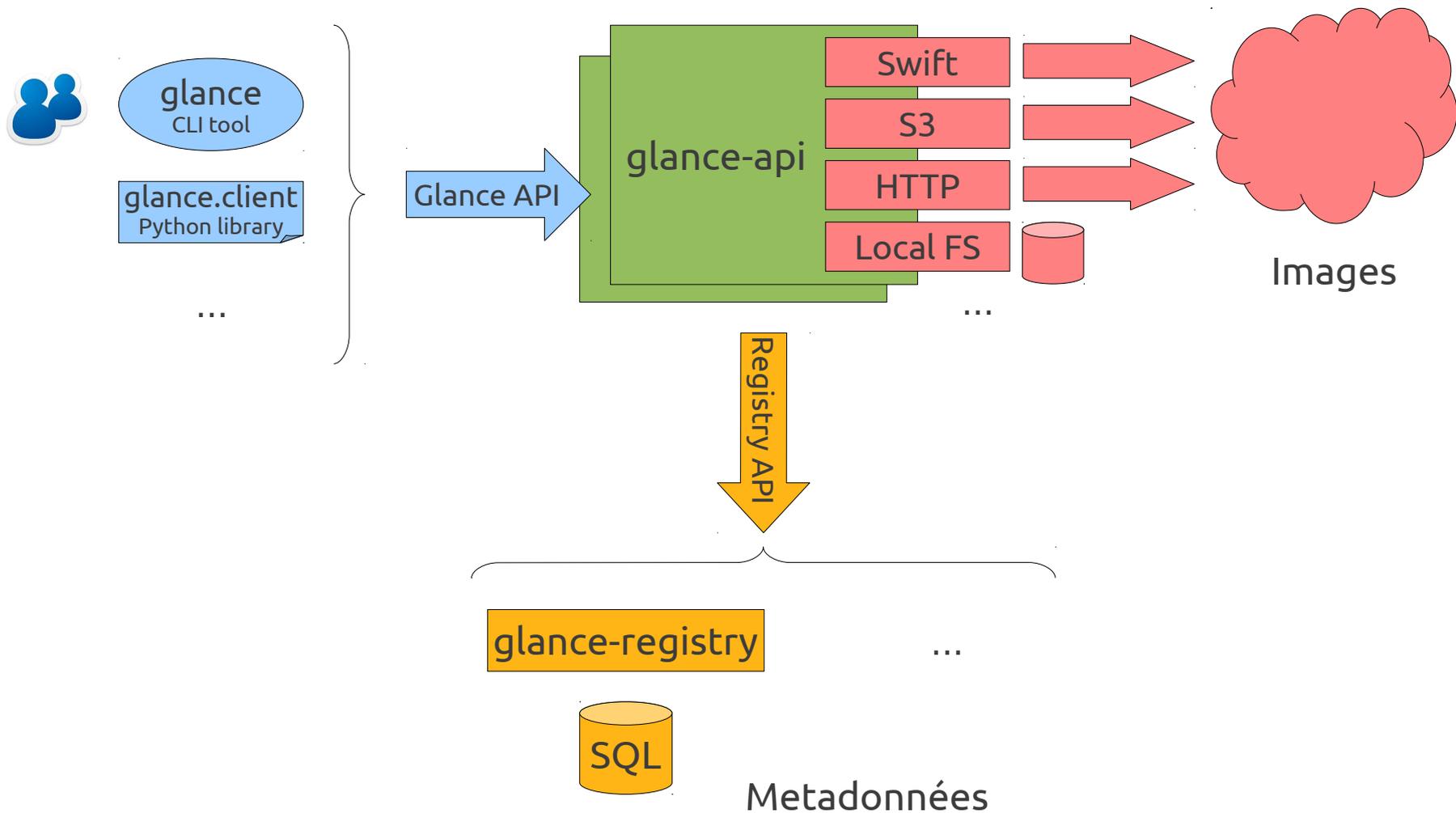
Swift: Montée en charge

- ♦ Pas d'index centralisé
- ♦ API servers indépendants
- ♦ Localisation dérivée du nom de l'objet
- ♦ Utilise des serveurs basiques

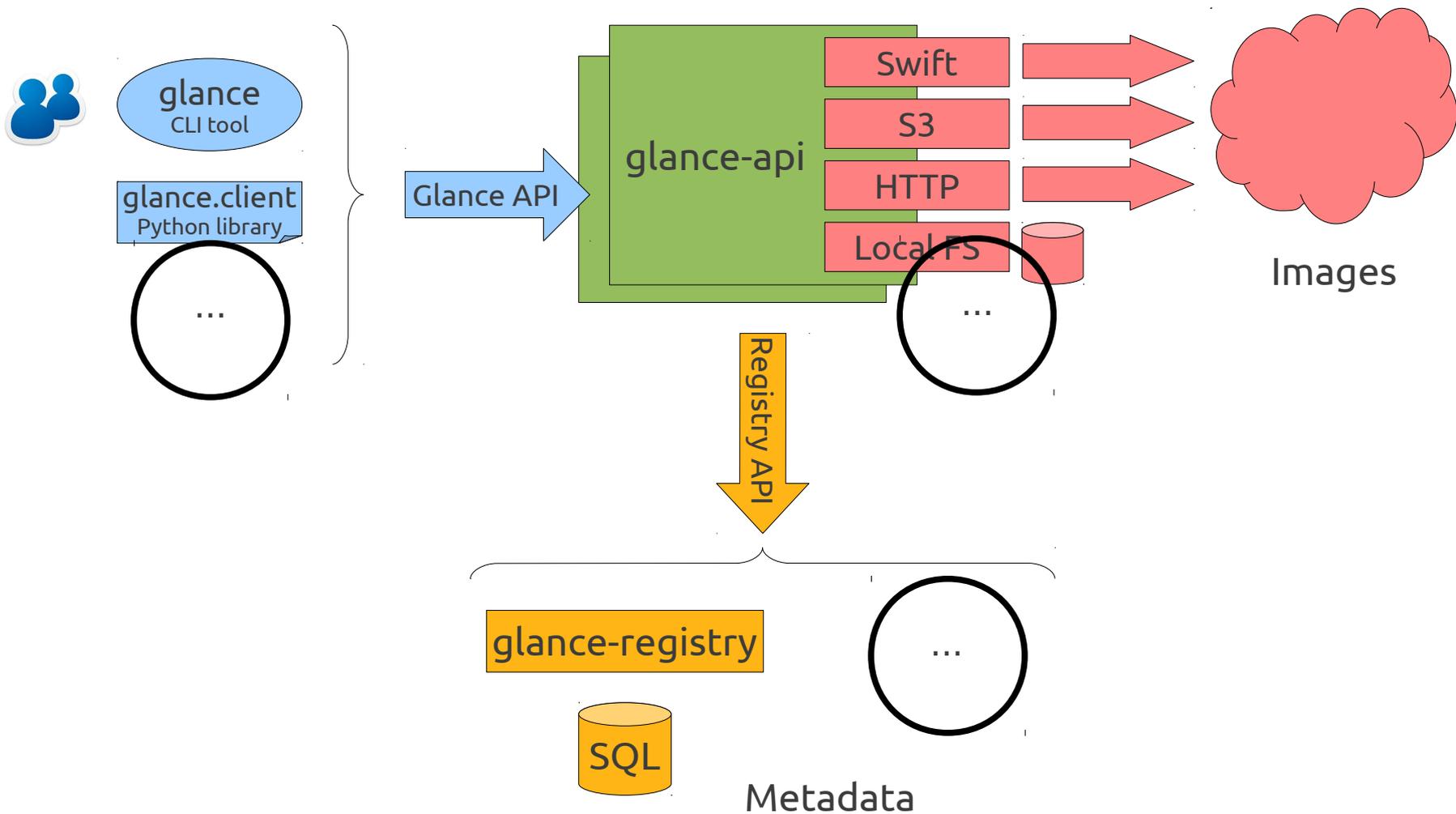
Glance (OpenStack Image service)

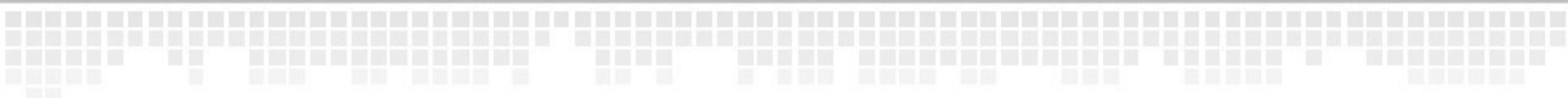
- ♦ Images disque et métadonnées associées
- ♦ Découvrir, enregistrer et récupérer
- ♦ Multiples formats de disque :
raw, VHD, vmdk, vdi, qcow2, ISO, aki, ari, ami
- ♦ Multiples formats de conteneurs :
ovf, bare, aki, ari, ami

Glance: Architecture



Glance: Extensibilité

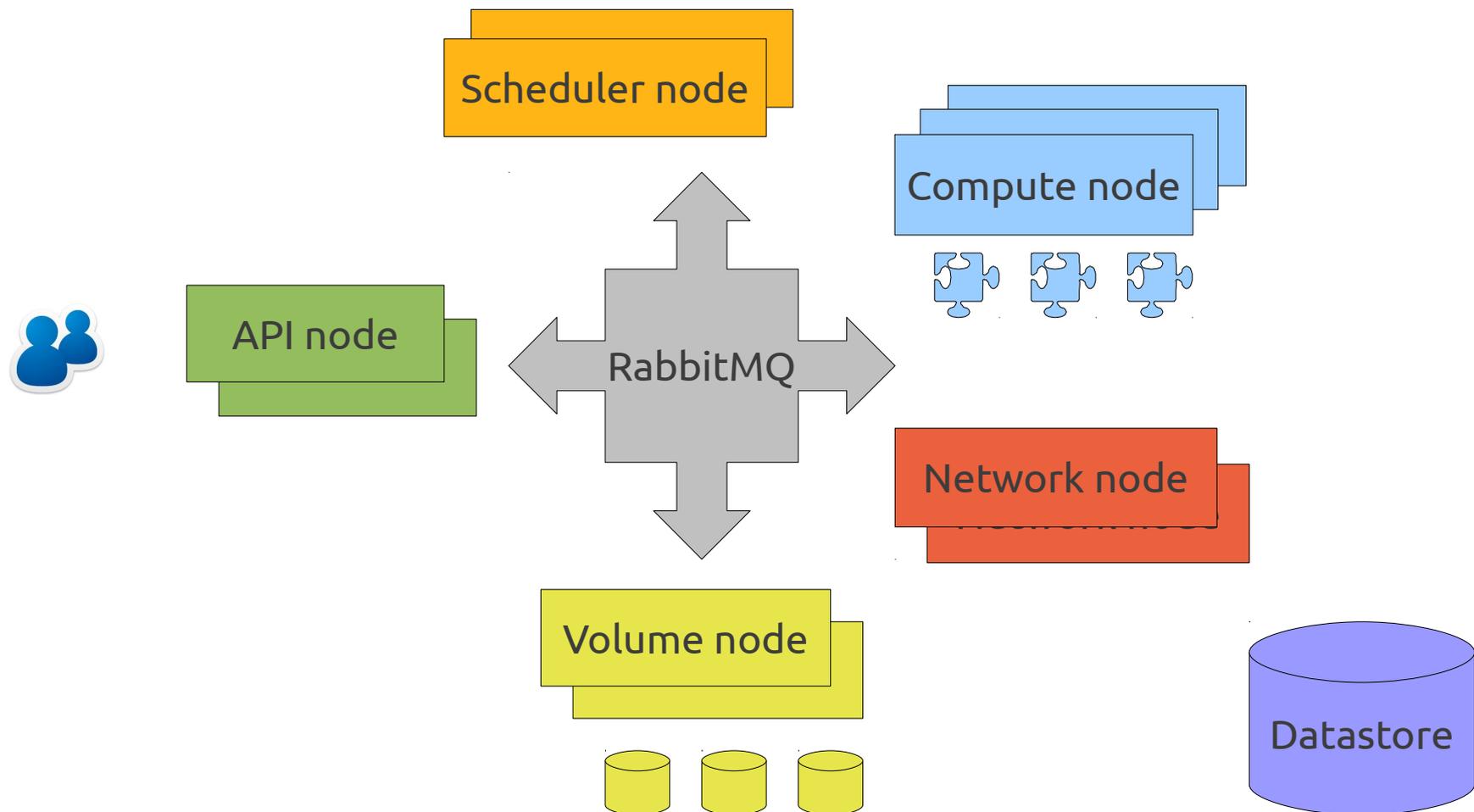




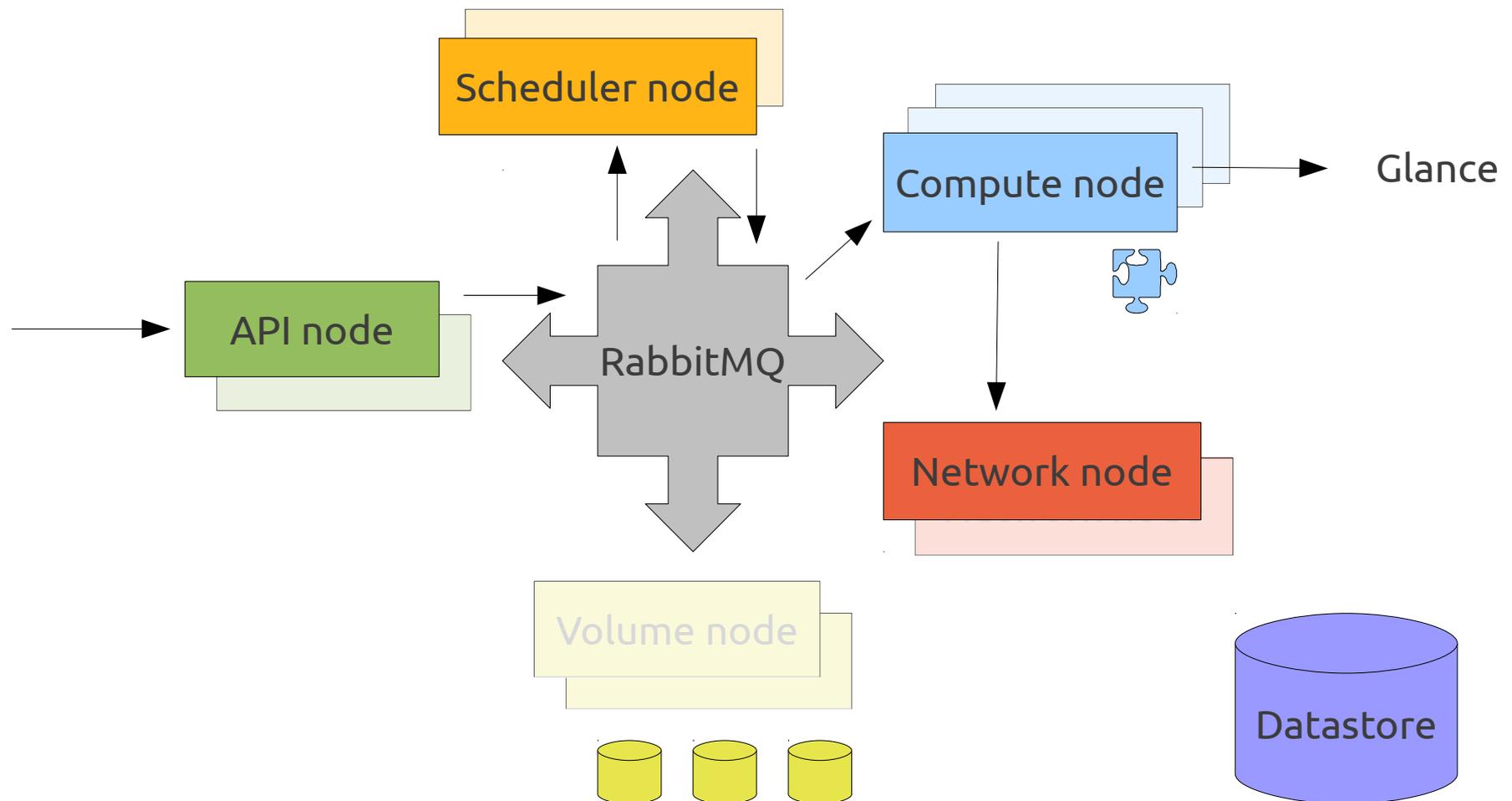
Nova (OpenStack Compute)

- ♦ « Machines virtuelles à la demande »
- ♦ Framework ultra-modulaire
- ♦ Evolution toujours rapide
- ♦ En production en IaaS privés (NASA)
- ♦ En beta en IaaS public (Rackspace, HP)

Nova: Architecture



Création d'une instance



Nova: Ultra-modularité

API node

- WSGI middleware
- EC2/OpenStack API
- Keystone/standalone auth

Network node

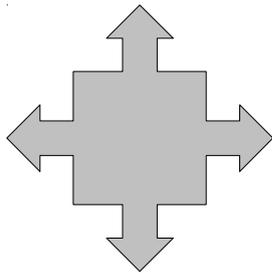
- Flat, FlatDHCP, Vlan
- IPv4 / IPv6

Scheduler node

- Pluggable
 - Chance
 - Zone-aware

Compute node

- QEMU, KVM, UML, LXC
- Xen and XenServer
- Hyper-V
- VMware vSphere



- AMQP



Datastore

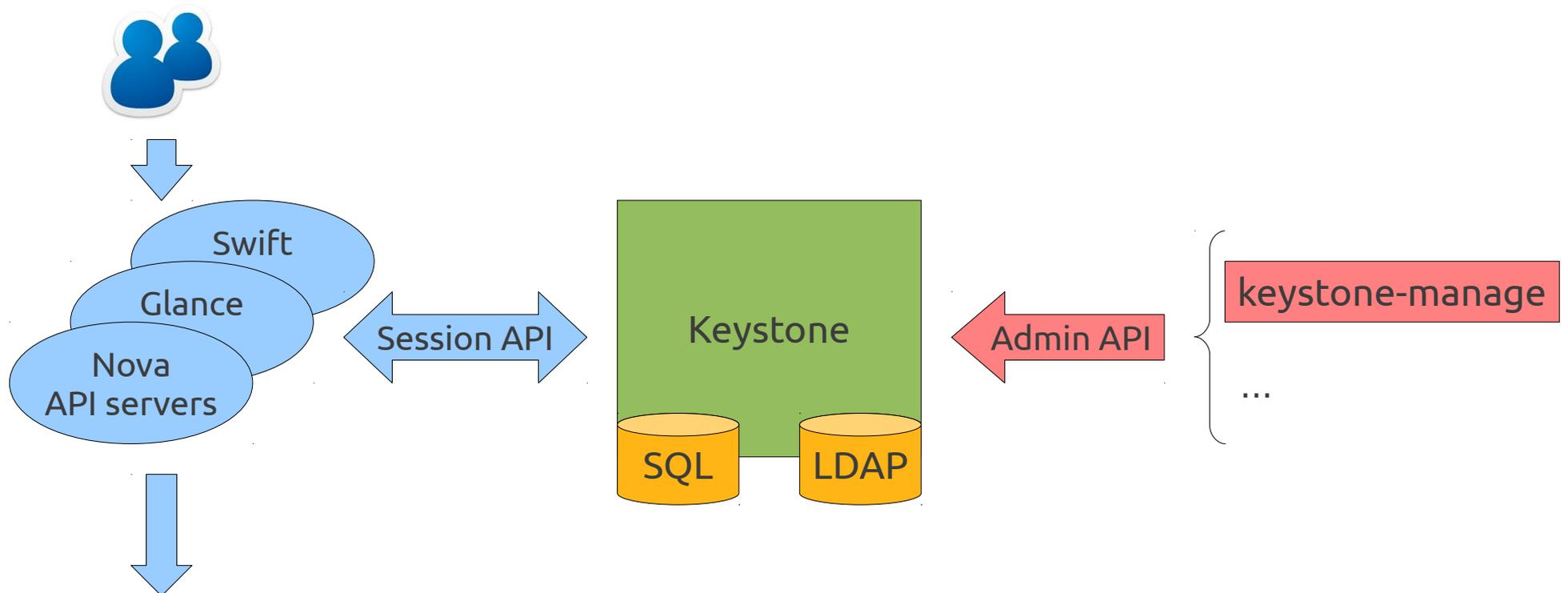
- Sqlite
- MySQL
- Postgres

Volume node

- Local LVM volume groups
- iSCSI
- Sheepdog
- HP/Lefthand SANs

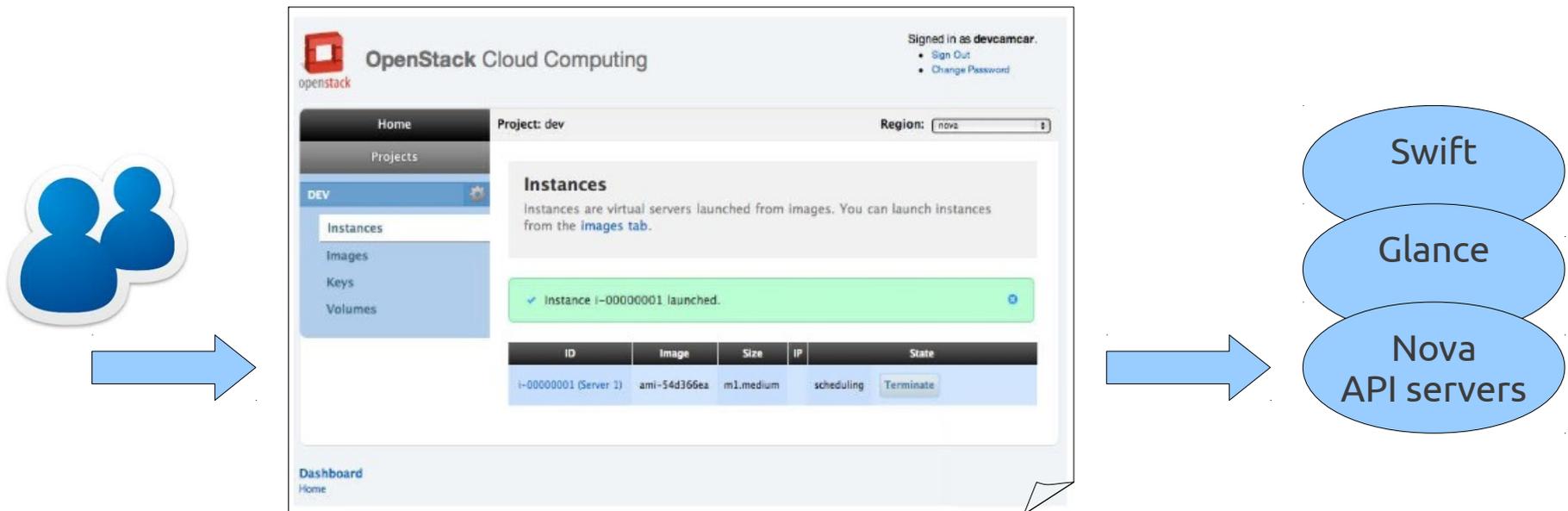
Keystone (OpenStack Identity)

- Comptes utilisateurs unifiés entre services



Horizon (OpenStack Dashboard)

- Module Django pour construire une UI web



OpenStack, c'est nous tous

<http://launchpad.net/openstack>
<http://wiki.openstack.org>
<http://planet.openstack.org>

IRC (Freenode)

#openstack
#openstack-dev

Mailing-list

<https://launchpad.net/~openstack>



Questions ?

thierry@openstack.org
<http://fnords.wordpress.com>
@tcarrez

