TRYSTACK.CN

OpenStack系列公开课

TRYSTACK.CN

两小时玩转OpenStack

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#上海　2013-02-19

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- OpenStack简介
- TryStack.cn社区
- OpenStack起步
- Hands-on Lab

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自我介绍

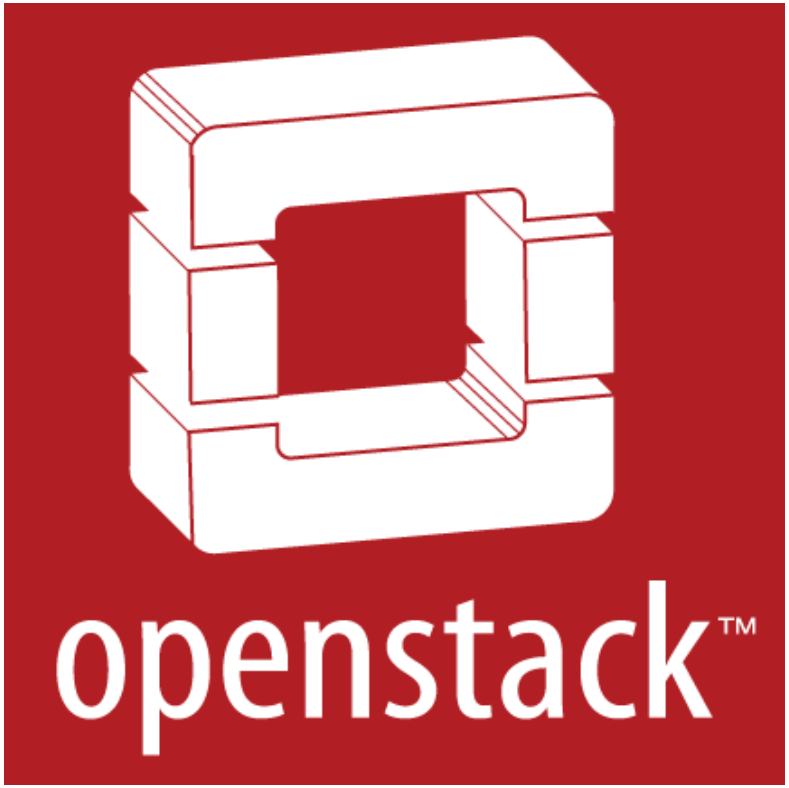
- 九州云社区拓展总监
- **OpenStack布道者**
- **TryStack.cn社区发起人**

本报告听众对象：

– 希望了解OpenStack基本概念及背景的童鞋

为开放而生

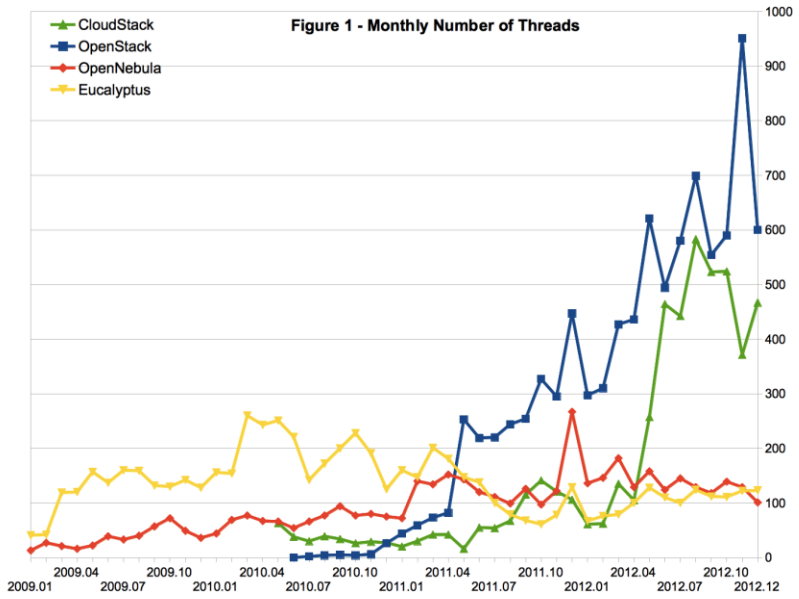
- Open Source –Apache 2.0 许可，企业友好。
- Open Design –六个月一次，基本与Ubuntu同步。
- Open Development –社会化研发，Launchpad & gihub。
- Open community – ***Lazy consensus model***（*懒人原则*），OpenStack 基金会。

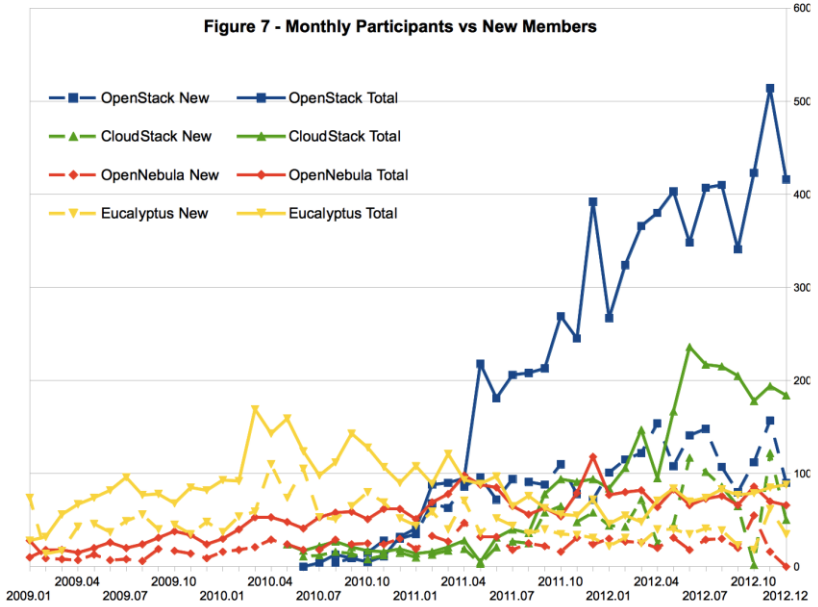


谁在用？

- Internap
  - http://www.internap.com/press-release/internap-announces-world%E2%80%99s-first-commercially-available-openstack-cloud-compute-service/
- Rackspace Cloud Servers, Powered by OpenStack
  - http://www.rackspace.com/blog/rackspace-cloud-servers-powered-by-openstack-beta/
- Deutsche Telekom
  - http://www.telekom.com/media/media-kits/104982
- AT&T
  - http://arstechnica.com/business/news/2012/01/att-joins-openstack-as-it-launches-cloud-for-developers.ars
- MercadoLibre
  - http://openstack.org/user-stories/mercadolibre-inc/mercadolibre-s-bid-for-cloud-automation/
- NeCTAR
  - http://nectar.org.au/
- San Diego Supercomputing Center
  - http://openstack.org/user-stories/sdsc/

CY12-Q4 云计算开源社区活跃度比较





数据来源：http://www.qyjohn.net/?p=2731

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OpenStack版本演变

openstack™

Austin Oct 2010,
Nova 17288,
Swift12979

Bexar Feb 2011,
Nova27734,
Glance 3629,
Swift 16014

Cactus Apr 2011,
Nova 43947,
Glance 4927,
Swift 16665

Diablo Sep 2011,
Nova 66395,
Glance 9961,
Keystone12451,
swift 15591

Essex Apr 2012,
Nova 87750,
Glance 15698,
KeyStone 11555,
Swift 17646

Folsom Sep 2012,
Nova 133723,
Glance 2071,
KeyStone 13939,
Quantum 42118,
Swift 19114

Grizzy Apr 2013
Coming soon!

2010 2011 2012 2013

每六个月一个发布周期

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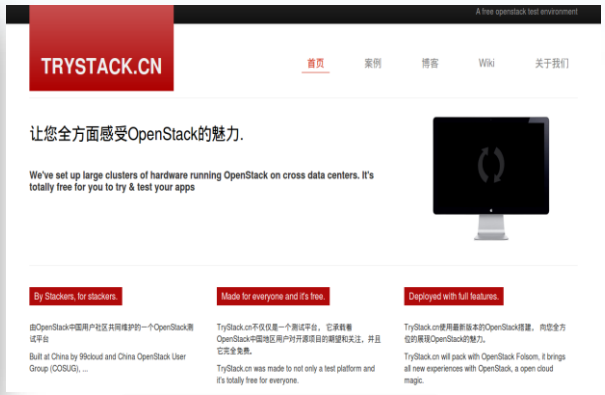
国内发展概况



2010年10月OpenStack发布第一个版本Austin

2011年9月6日首届中国OpenStack社区大会“OpenStack上海峰会”召开
ttp://finance.ifeng.com/roll/20110830/4489417.shtml

2012年8月10日、11日“OpenStack亚太峰会”在北京和上海同时召开
http://www.csdn.net/article/2012-08-20/2808874

2012年10月美国OpenStack峰会
Trystack.cn正式发布
www.slideshare.net/openstack/trystack-introfinalpdf

2010

2011

2012

2011年5月中国OpenStack用户组成立（China OpenStack User Group，简称COSUG）
http://groups.google.com/group/china-openstack-user-group

2012年1月8日中国OpenStack开发者大会在北京上海两地召开
http://e.gensee.com/m_154692

2012年9月20日OpenStack基金会成立

why OpenStack is so popular in China? http://dell.to/XEZPWD

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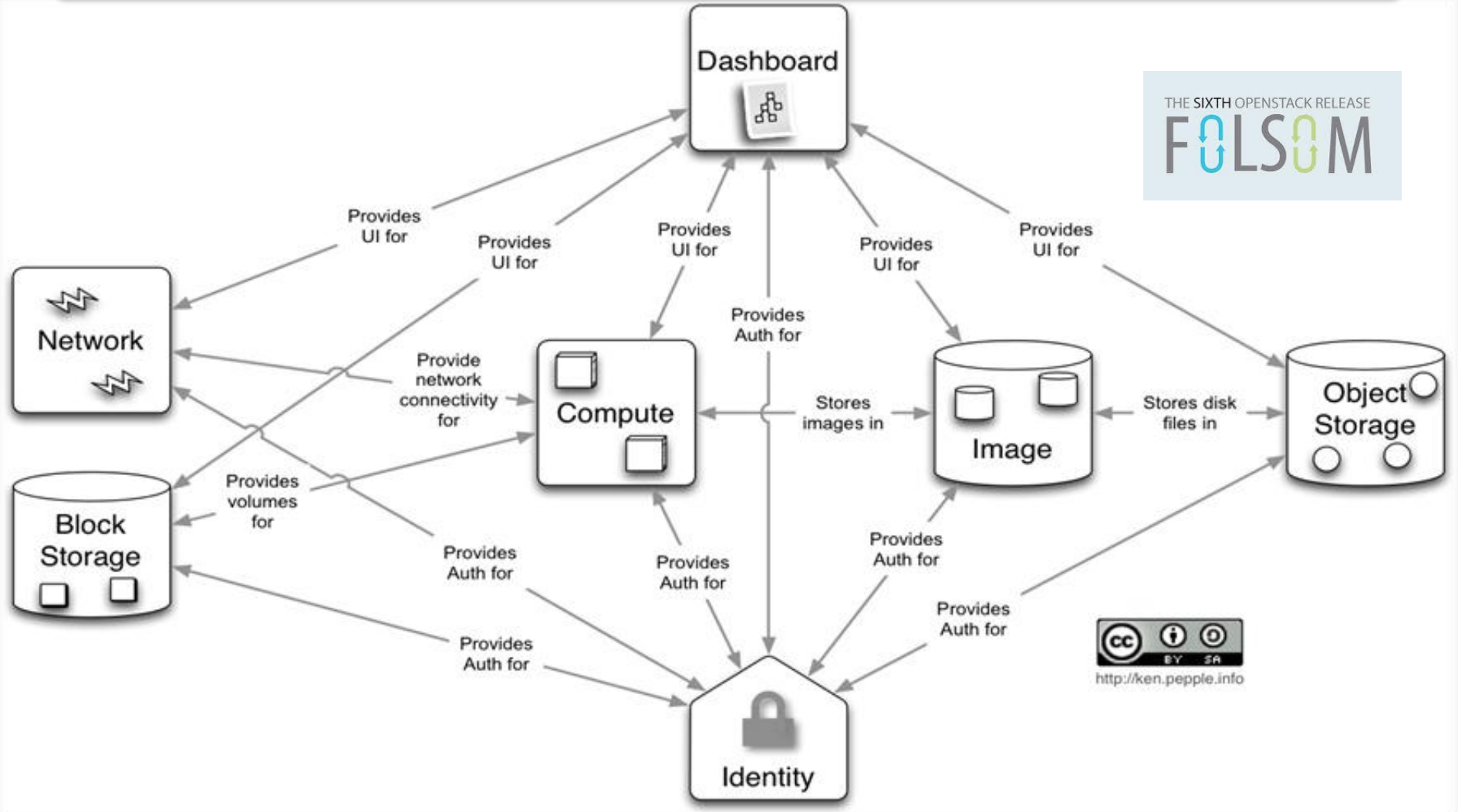
OpenStack架构

OpenStack由一系列的子项目组成，形成一个完整的 IaaS解决方案，如何做到的？



Source: http://ken.pepple.info/openstack/2012/09/25/openstack-folsom-architecture/

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社会化研发

	知识管理	需求&事务管理	版本控制	代码复查	持续集成
GUI					
工具					
相关概念、特性等	• 用户 • 页面	• 项目 • 用户 • 问题/任务	• 用户 • 代码 • 版本	• 审核 • 评论 • 提交	• 构建 • 版本 • 许可

协作工具

邮件列表

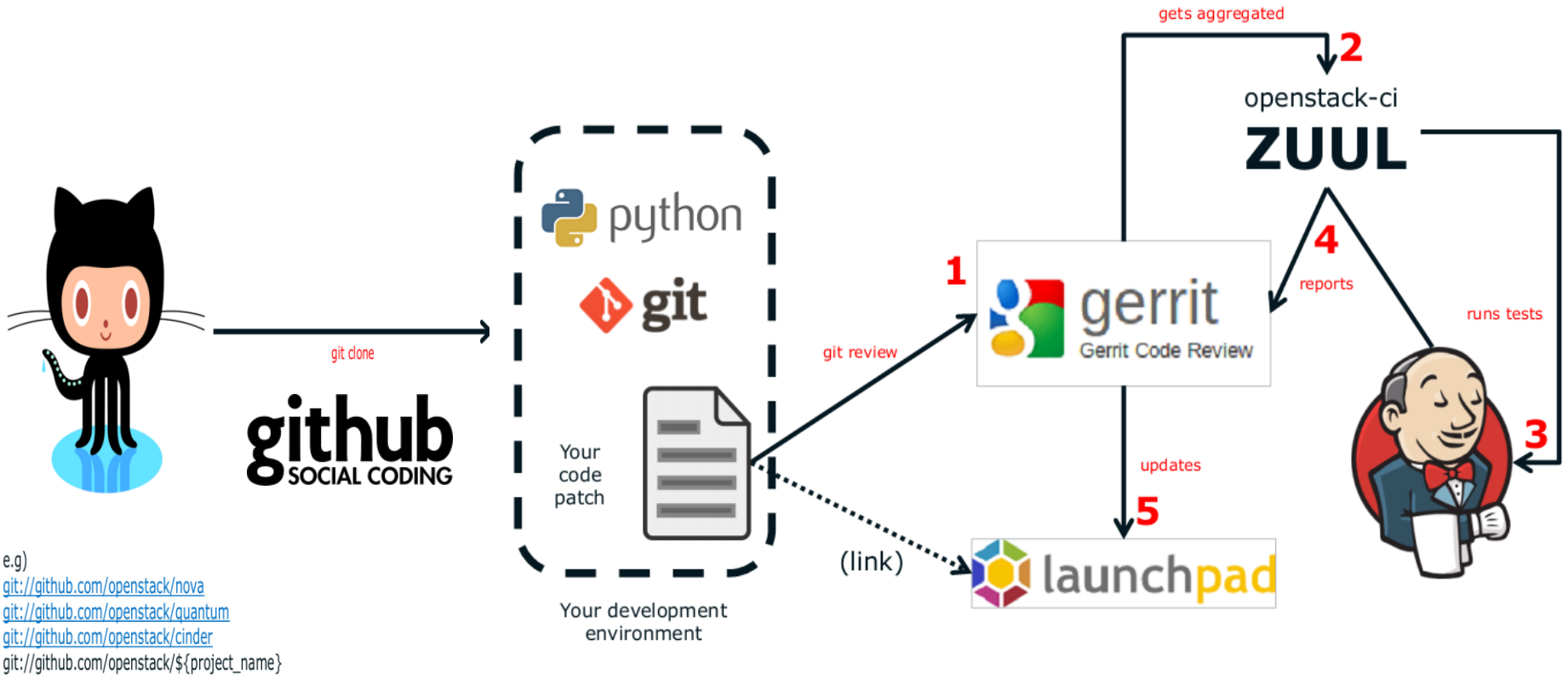
- General
- Developer
- Documentation
- Community
- Operators

社交网络



IRC

持续集成


gets aggregated
2
openstack-ci
ZUUL
4
reports
runs tests
3
1
gerrit
Gerrit Code Review
git review
python
git
git clone
github
SOCIAL CODING
Your
code
patch
updates
5
(link)
launchpad
Your development
environment
e.g)
git://github.com/openstack/nova
git://github.com/openstack/quantum
git://github.com/openstack/cinder
git://github.com/openstack/${project_name}

Where To Get Started

DISTRIBUTIONS

Devstack.org

Trystack.org

各种发型版本　　一个快速搭建开发环境的脚本　　OpenStack试用平台

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What's trystack.cn ?

- 是一个非营利的社区项目
  - By Stackers, for stackers ;
- 用于 体验OpenStack最新特性；
- 发布于OpenStack Summit San Diego 2012 ;

Welcoming contributions and feedback, Join the fun !

Slides are on slideshare for download: www.slideshare.net/openstack/trystack-introfinalpdf and update: http://www.slideshare.net/ben_duyujie/learn-openstack-from-trystackcn-folsom-in-practice

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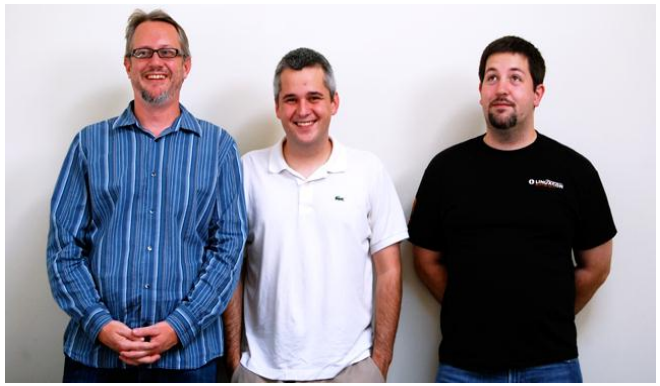
Why trystack.cn ?

希望能够为OpenStack基金会官方项目TryStack.org提供本地化支持：

lists.launchpad.net/openstack/msg16895.html



Stefano Maffulli <stefano.maffulli@rackspace.com> 12-9-7

发送至 我

英文 › 中文 翻译邮件

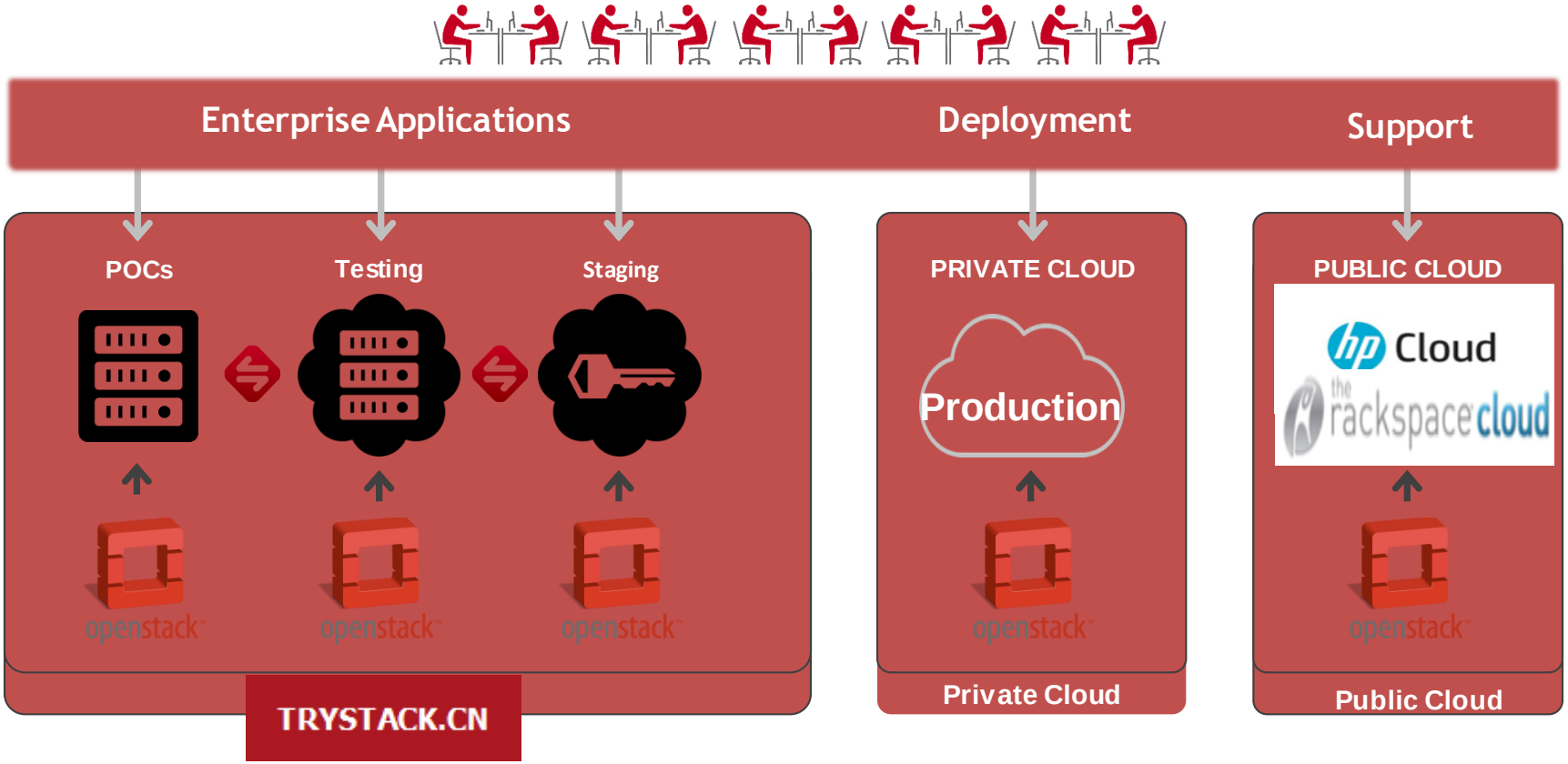
Hi Ben,

this is great news, thanks for pushing this forward. I'm sorry to hear that trystack.org is blocked: is there any way we can help remove that block?

As for trystack.cn, I'm not sure what the legal agreements should be. I'll let Jonathan answer that question.

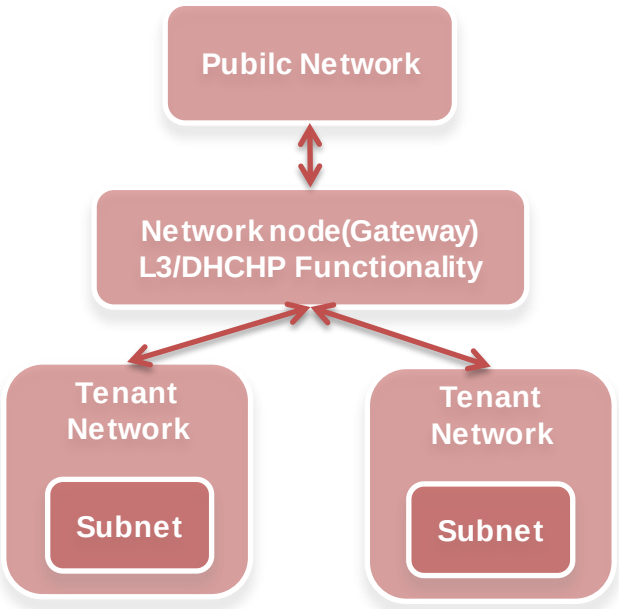
Trystack.cn

- OpenStack 最新特性体验平台；
- 提供不同架构，为不同的租户和应用提供测试环境；
- 帮助社区开发者熟悉 OpenStack APIs。

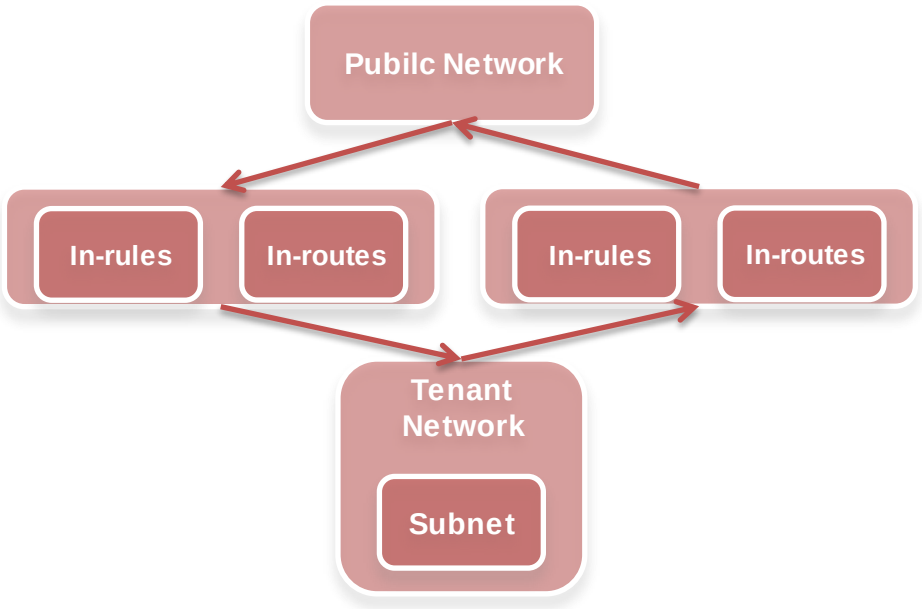


1. OpenStack 最新特性体验平台，从 Folsom

Essex model

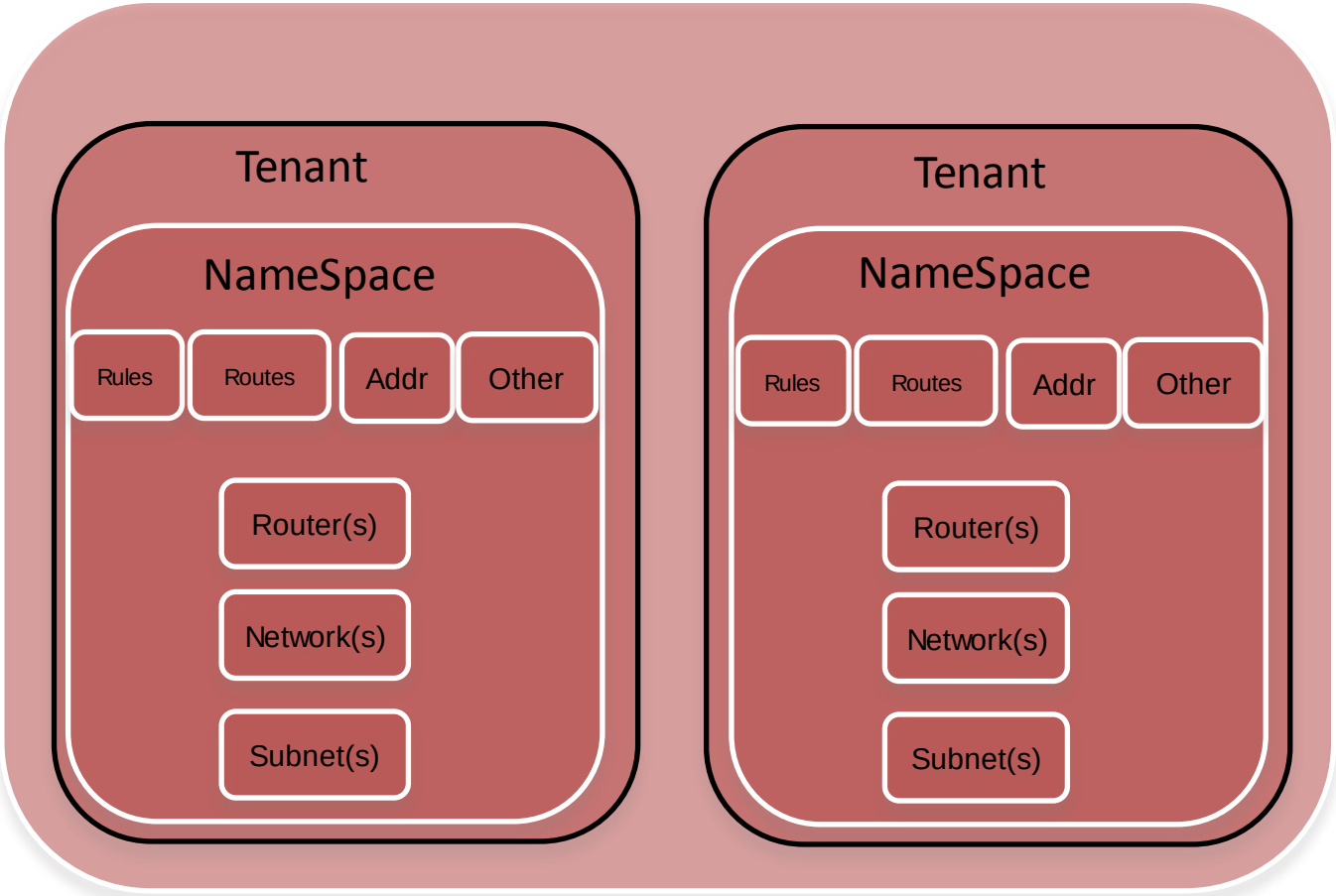


Essex iptables model



There's no namespace shared for all tenant's networks/subnets.
All interfaces and their ip addresses,routes,firewall rules in iptables and dhcp processes for tenant interfaces are in the same "namespace".

The Folsom network node (L3 / DHCP agent node)



Namespace isolated

Interfaces (Gateway interfaces and others like “tap” interfaces…) don’t show up anymore in your OS’s configuration commands like “route”, “ip “, “ifconfig”.

Firewall / NAT rules (Iptables rules) won’t show up anymore in “iptables” commands for the system wide rules.

DHCP interfaces (See left) also doesn’t show up.

Openvswitch plugin

- The Quantum Openvswitch plugin consists of two components:
- 1) A **plugin** loaded at runtime by the Quantum service. The plugin processes all API calls and stores the resulting logical network data model and associated network mappings in a database backend .
- 2) An **agent** which runs on each compute node (i.e., each node running nova-compute). This agent gathers the configuration and mappings from the central mysql database and communicates directly with the local Open vSwitch instance to configure flows to implement the logical data model.

Try it yourself: http://wiki.openstack.org/QuantumDevstack

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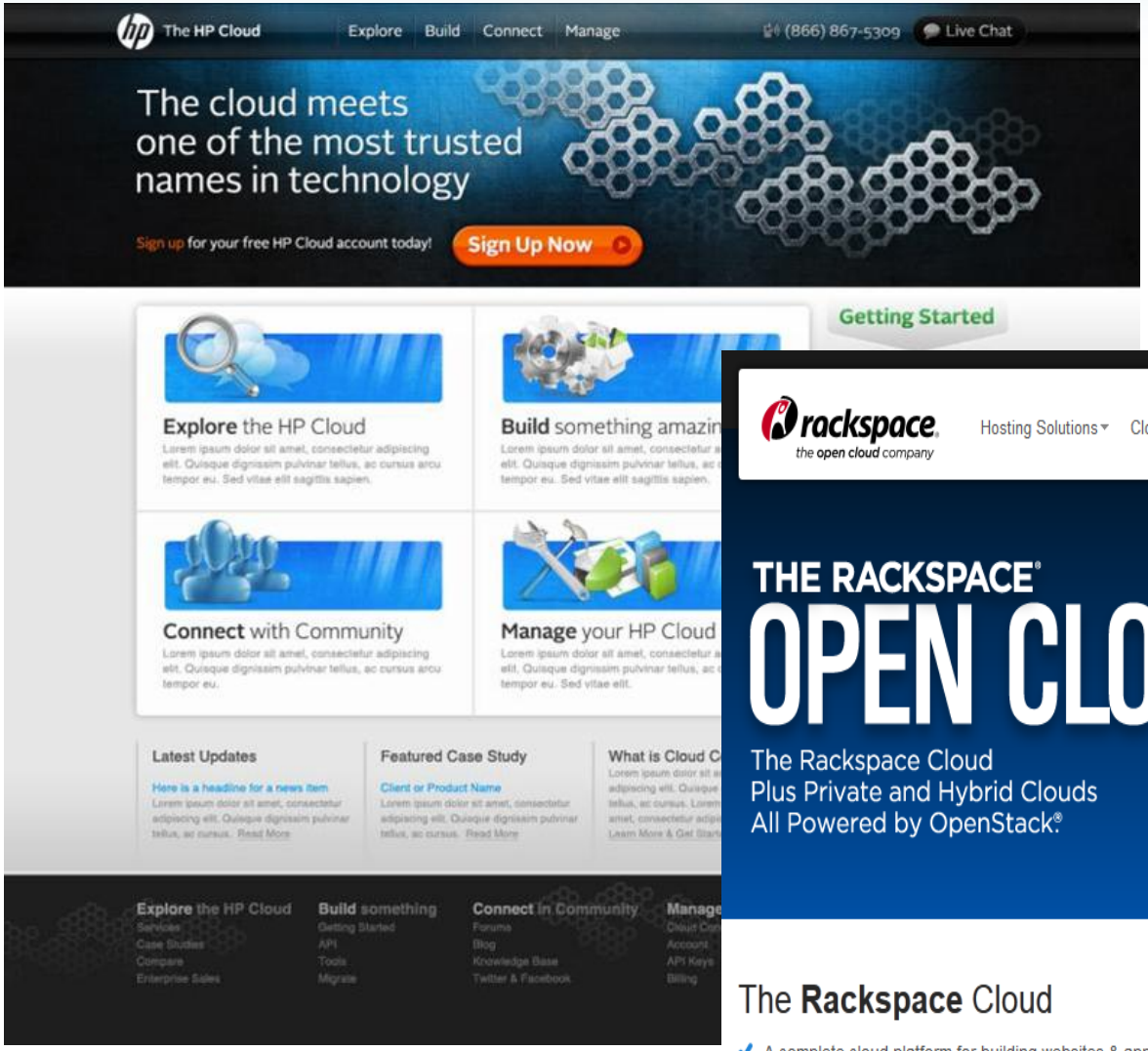
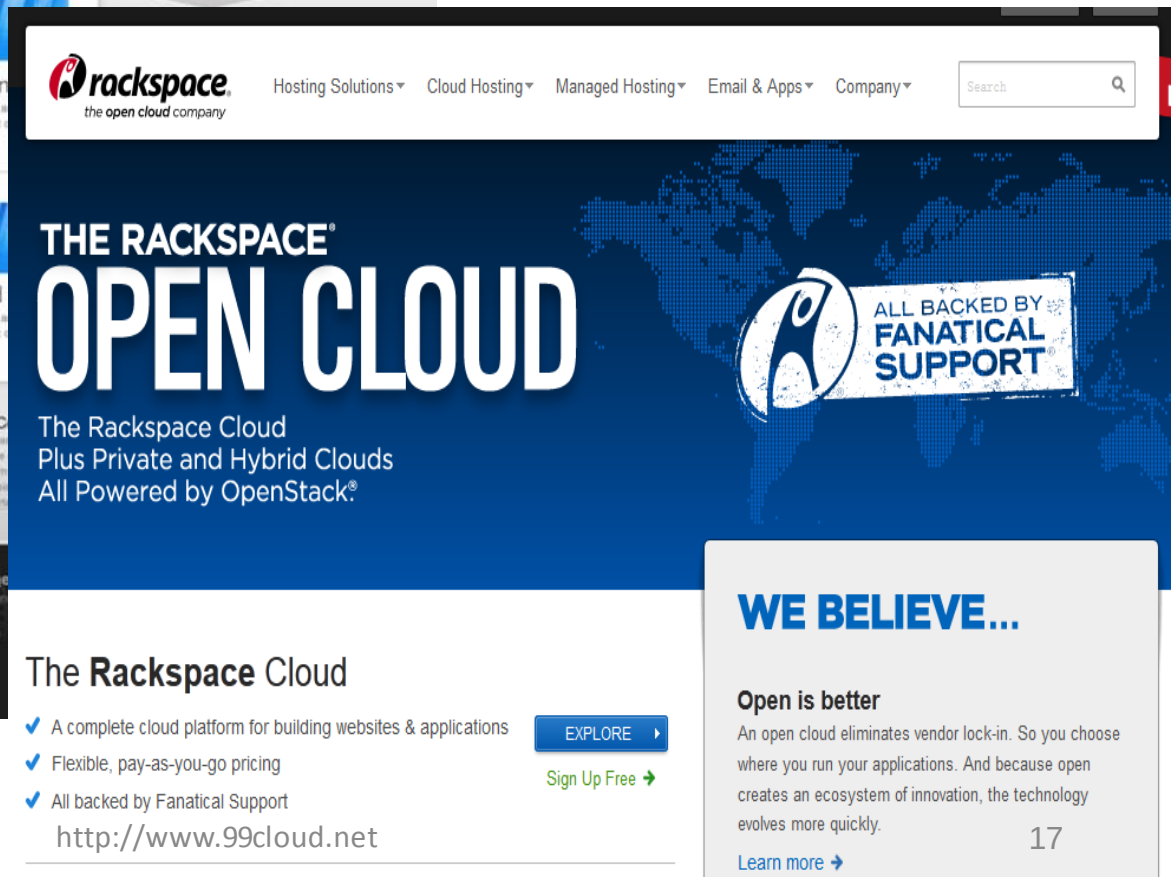
2. 为不同架构提供测试环境

基于OpenStack的

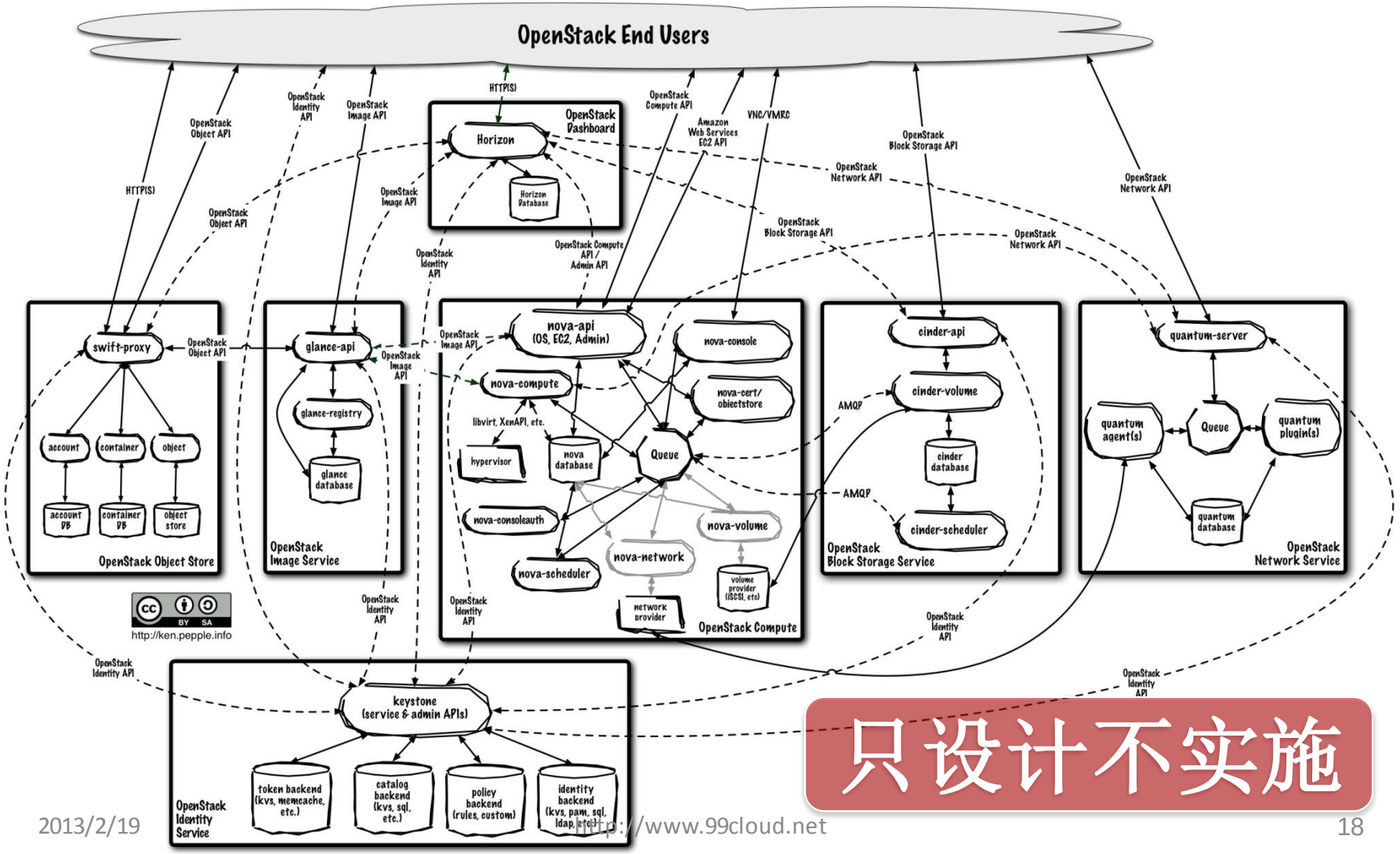
公有云





http://www.99cloud.net

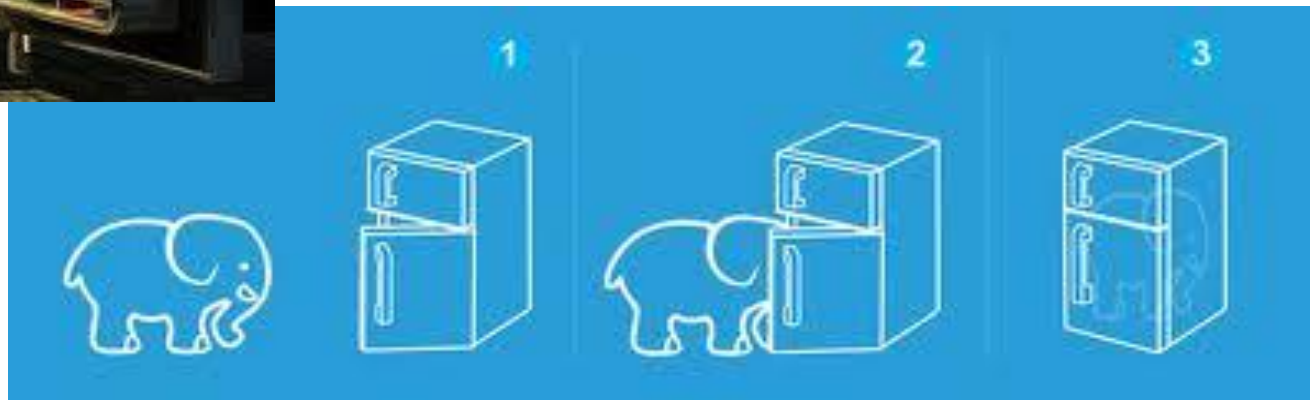
Having cloud-enabled technology != Having a cloud



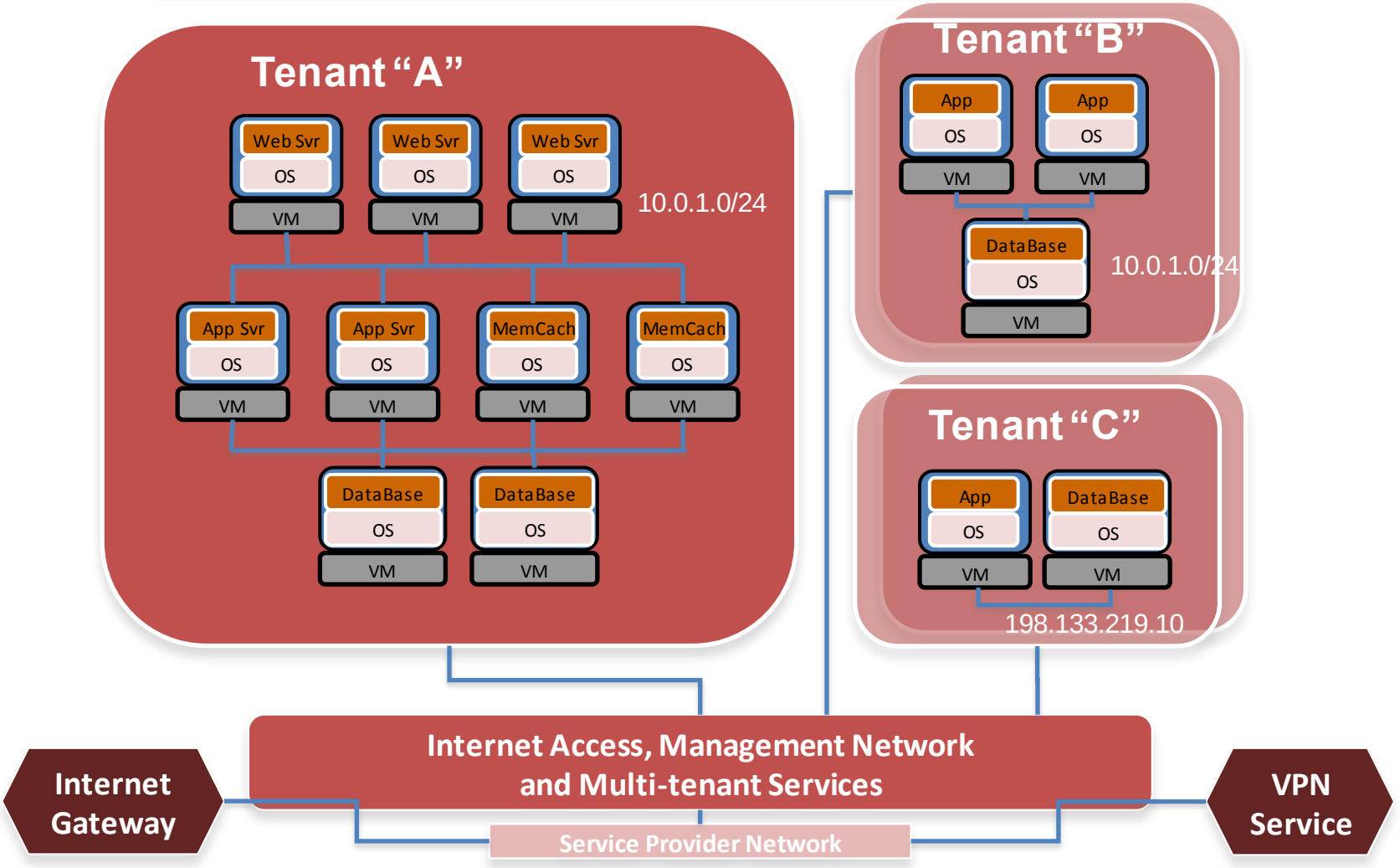
只设计不实施

大象是如何装到冰箱的？

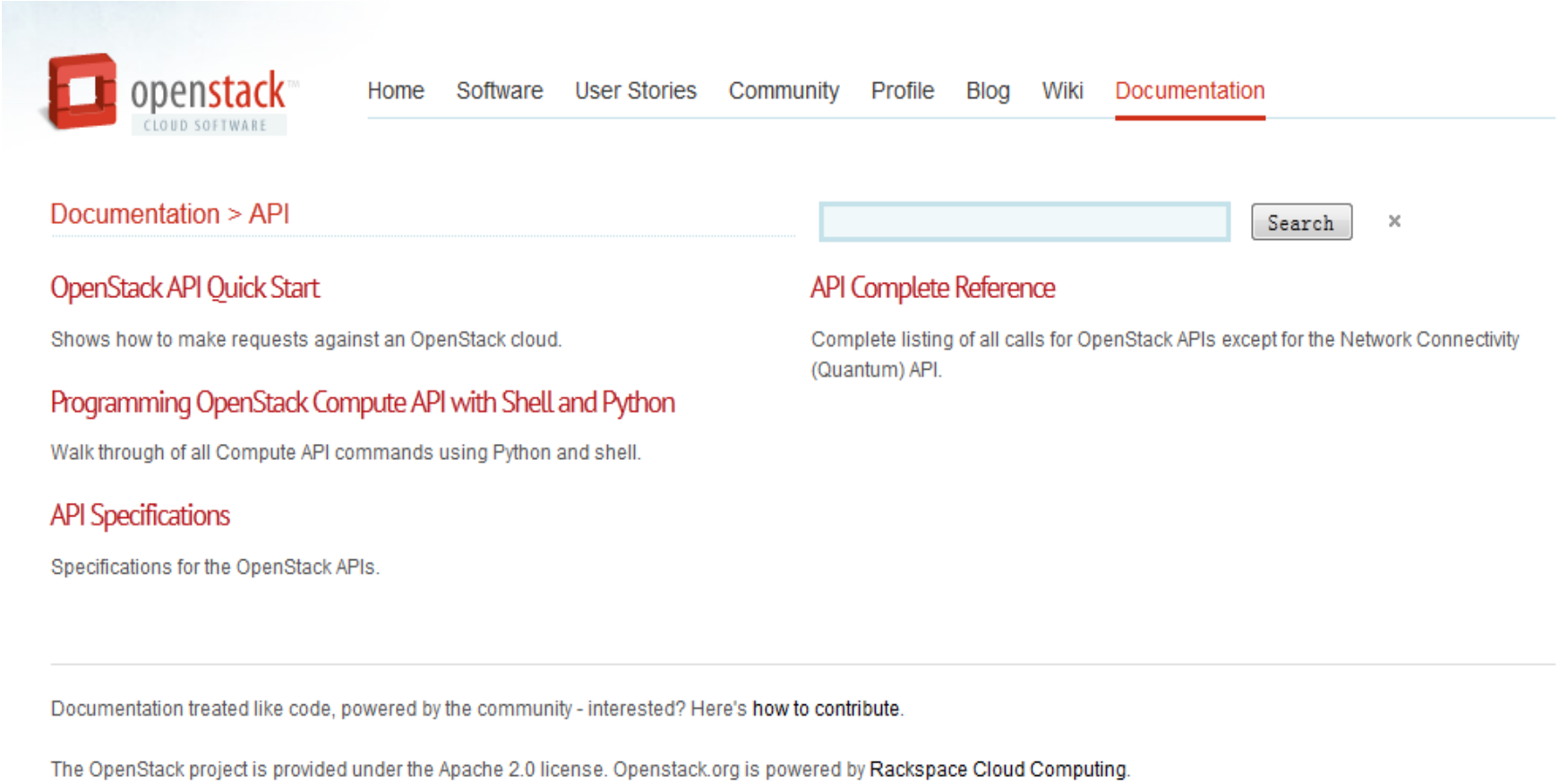
第二步怎么办？



提供不同架构——不同的租户和应用有不同的需求



3. 帮助社区开发者熟悉 OpenStack APIs



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Who are trying?

A single region: the“CloudFoundry Region“ for VMWare China.

- 4 servers with 32G+ memory, 12+ cores each
- 1TB storage
- Network
  - CF VLAN: 100 ip (all VMs need to access internet directly)
  - Service VLAN (optional): 8 ip
  - Public VLAN: 1 public ip
- Images
  - 64-bit Ubuntu 10.04 LTS
- Openstack
  - Folsom
    - OS_USERNAME, OS_TENANT_NAME, OS_PASSWORD, OS_AUTH_URL
  - Openstack console access

CloudFoundry doesn't work on folsom

- https://groups.google.com/a/cloudfoundry.org/forum/?fromgroups=#!topic/bosh-users/0mzvv5HLQ5o
- https://bugs.launchpad.net/nova/+bug/1076119

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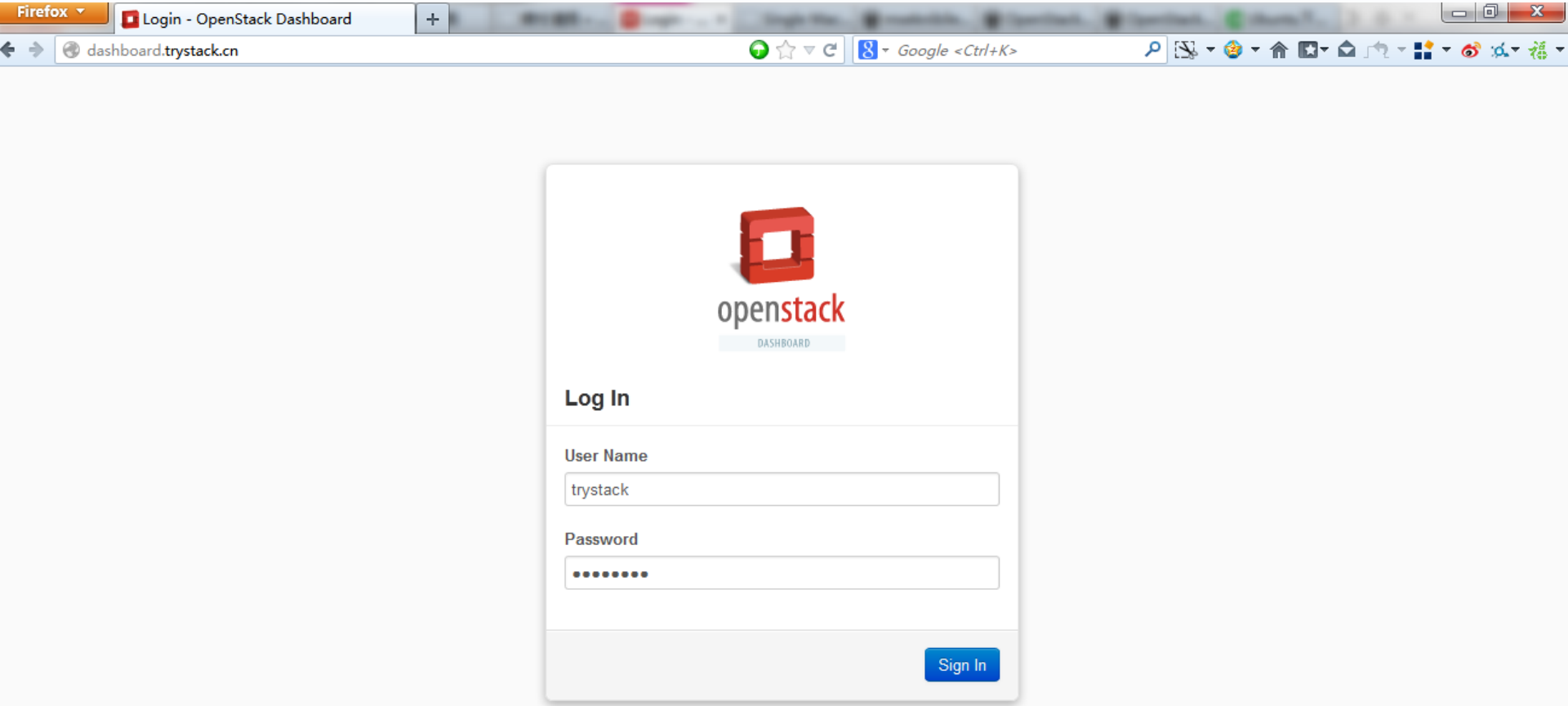
Demo



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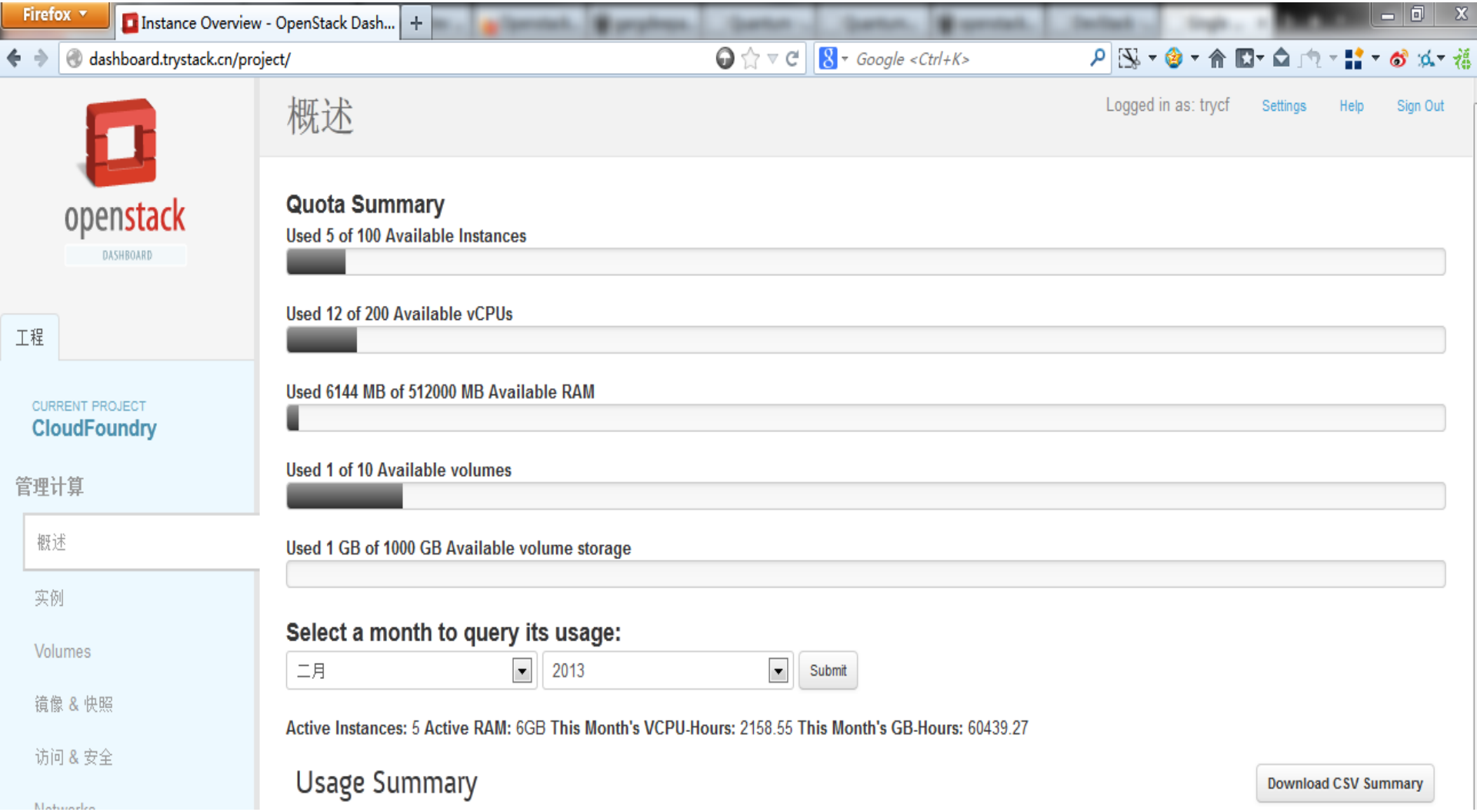
Demo



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DevStack is ...

- 是一个文档化的脚本http://devstack.org/stack.sh.html；
- 用来构建OpenStack开发环境；
- 最初是由Rackspace Cloud Builders实现，后来成为OpenStack社区的一个开源项目；
- 目前支持Ubuntu和 Fedora 版本，在单节点或多节点环境都可以上安装；
- 不推荐在生产环境中直接使用。

DevStack适合谁来使用?

- OpenStack开发者；
  - 可以用来测试和验证所做修改是否可以在一个运行的OpenStack平台工作；
  - 持续集成系统可以用它来对Geerit上代码审核进行测试；
- OpenStack用户：
  - 用做demo或POC演示；
  - 体验最新的OpenStack。

主要文件

localrc:

- localrc is a user-maintained settings file that is sourced from stackrc. This gives it the ability to override any variables set in stackrc. Samples: http://devstack.org/localrc.html

stackrc:

- git repo and branch information, image download location. This file shouldn't be modified, only localrc should be modified.

stack.sh:

- stack.sh is an opinionated OpenStack developer installation. It installs and configures various combinations of Glance, Horizon, Keystone, Nova, Quantum Swift and some other projects

exercise.sh:

- setting up the env for running the sample exercise cmds

exercises/ folder:

- contains a small set of exercise file for achieving different functionalities

安装DevStack之前，先来看一个localrc配置文件事例

```
MYSQL_PASSWORD=ms
MYSQL_USER=root
ADMIN_PASSWORD=adminsecret
FIXED_RANGE=192.168.10.0/24
ENABLED_SERVICES+=",q-svc,quantum,q-agt,swift,n-cauth,melange,m-svc,mysql"
Q_PLUGIN=openvswitch
RABBIT_PASSWORD=rabbitsecret
SERVICE_TOKEN=admintoken
SWIFT_HASH=deep
SERVICE_PASSWORD=sp
#OFFLINE=True
#RECLONE=yes
```

还要注意你的Hypervisor

- 验证 AMD V CPU 虚拟化支持：
  - # grep color **svm** /proc/cpuinfo
- 验证 Intel VT CPU 虚拟化支持：
  - # grep color **vmx** /proc/cpuinfo
- 如果你在虚拟里运行OpenStack，安装完之后底层由 **Qemu** 提供支持；
- 如果你在localrc里没有配置，安装脚本将会尝试安装OVS KVM插件，你也可以Localre文件通过 **reqd. Conf** 配置。

Tips & Tricks

- /opt/stack, /etc/nova, /var/log/nova 的用户组和用户均是**stack**，如果出现莫名其妙的问题，请先确保这些目录权限是对的。
  - 出了问题试试：**sudo chown stack:stack + 提示有问题的目录**。
- 执行完./stack.sh 不要急着做其他工作，先**验证**一下环境是否安装成功
  - # nova-manage version
  - # nova-manage service list
  - # nova-manage host list
- 可以通过配置 devstack来使用 多个OpenStack版本，如想使用**Folsom**版就可以在localrc文件中添加以下内容:
  - NOVA_BRANCH=stable/folsom
  - CINDER_BRANCH=stable/folsom
  - GLANCE_BRANCH=stable/folsom
  - KEYSTONE_BRANCH=stable/folsom
  - QUANTUM_BRANCH=stable/folsom
  - HORIZON_BRANCH=stable/folsom

Developing and Debugging

- 默认的文件目录是/opt/stack
- 修改文件然后重启服务
- 使用screen查看输出日志
  - screen -d -m -S <screen-name> -t shell -s /bin/bash
  - $ screen -x stack
- 创建一个 mysql 数据库用户 ‘stack’ 或使用'root'

DevStack 到底干了些什么事呢？

- 首先devstack 会从 OpenStack git 仓库里下载代码，并在你的主机或虚机理部署OpenStack：
  - devstack 不是使用的系统软件源里的OpenStack包，而是git仓库里的源码
  - 虽然目前由OpenStack 社区在维护该项目，但没有任何 担保，你懂的☺
- 下载并安装Openstack运行所需要的系统软有：
  - 大概包括一些python的组件、mysql、rabbitmq-server等；
  - 下载openstack组件，包括nova 、keystone、glance、noVNC、horizon等；
  - 下载并安装openstack源码所依赖的python库和框架；
  - 安装openstack各组件；
  - 启动各项服务

目录 CONTENTS

Hands-on Lab

- 运行 devstack脚本
- 查看OpenStack services 运行情况
- 通过命令行和Dashboard与OpenStack交互
- 运行**QuantumDevstack**
- 使用devstack的开发流程

DevStack Demo

- 通过Virtualbox虚拟出两台虚拟机
  - 虚拟机系统为 Fedora 17；
  - 一个作为控制节点跑Nova, Glance, Horizon, Quantum等服务；
  - 另一个作为计算节点运行Nova compute 和 Quantum Agent；
- 从Git仓库中抓取OpenStack最新代码，可以选取最新稳定分支“Folsom” 代码
  - 需要修改localrc 文件选择stable/folsom branch

Devstack in 30 seconds

- 快速入门
  - git clone http://github.com/openstack-dev/devstack.git
  - cd devstack && sudo ./stack.sh（创建stack用户）
- 提示信息
  - localrc:Contain settings for each node running devstack
  - stackrc: git repository and branch information

使用Devstack的开发流程

1. 运行Devstack脚本
2. 把你的 IDE (Eclipse) 目录指向 /opt/stack
3. 修改代码
4. 在不同的screen上查看各自的服务
5. 重启服务
6. 测试和验证log 信息
7. 使用gerrit来 Commit & Push 你的代码

Control节点localrc实例文件

```
OFFLINE=True
#RECLONE=yes
disable_service n-net
enable_service q-svc
enable_service q-agt
enable_service q-dhcp
enable_service q-l3
enable_service quantum
#enable_service ryu

HOST_NAME=$(hostname)
SERVICE_HOST_NAME=${HOST_NAME}
SERVICE_HOST=192.168.64.188
FLOATING_RANGE=192.168.100.0/24
Q_PLUGIN=openvswitch

Q_HOST=$SERVICE_HOST

Q_USE_NAMESPACE=False

ENABLE_TENANT_TUNNELS=True

MYSQL_HOST=$SERVICE_HOST

RABBIT_HOST=$SERVICE_HOST

GLANCE_HOSTPORT=$SERVICE_HOST:9292

KEYSTONE_AUTH_HOST=$SERVICE_HOST

KEYSTONE_SERVICE_HOST=$SERVICE_HOST

MYSQL_PASSWORD=mysql

RABBIT_PASSWORD=rabbit

SERVICE_TOKEN=service

SERVICE_PASSWORD=admin

ADMIN_PASSWORD=admin

SCHEDULER=nova.scheduler.simple.SimpleScheduler

# compute service

NOVA_BRANCH=stable/folsom

# volume service

CINDER_BRANCH=stable/folsom

# image catalog service

GLANCE_BRANCH=stable/folsom

# unified auth system (manages accounts/tokens)

KEYSTONE_BRANCH=stable/folsom

# quantum service

QUANTUM_BRANCH=stable/folsom

# django powered web control panel for openstack

HORIZON_BRANCH=stable/folsom
```

Compute节点localrc实例文件

```
OFFLINE=true
#RECLONE=yes
disable_all_services
enable_service rabbit n-cpu quantum q-agt

HOST_NAME=$(hostname)
SERVICE_HOST_NAME=km-dhcp-64-188
SERVICE_HOST=192.168.64.188

FLOATING_RANGE=192.168.100.0/24
Q_PLUGIN=openvswitch

Q_HOST=$SERVICE_HOST

Q_USE_NAMESPACE=False

ENABLE_TENANT_TUNNELS=True

MYSQL_HOST=$SERVICE_HOST

RABBIT_HOST=$SERVICE_HOST

GLANCE_HOSTPORT=$SERVICE_HOST:9292

KEYSTONE_AUTH_HOST=$SERVICE_HOST

KEYSTONE_SERVICE_HOST=$SERVICE_HOST


MYSQL_PASSWORD=mysql

RABBIT_PASSWORD=rabbit

SERVICE_TOKEN=service

SERVICE_PASSWORD=admin

ADMIN_PASSWORD=admin

# compute service

NOVA_BRANCH=stable/folsom

# volume service

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# django powered web control panel for
openstack

HORIZON_BRANCH=stable/folsom
```

Try it yourself:
http://wiki.openstack.org/QuantumDevstack

Quantum Devstack单节点

- localrc配置：

  disable_service n-net

  enable_service q-svc

  enable_service q-agt

  enable_service q-dhcp

  enable_service q-l3

  enable_service q-meta

  enable_service quantum

Quantum Devstack多节点

- controller node localrc配置同左；
- compute node localrc配置：

  ENABLED_SERVICES=n-cpu,rabbit,g-api,quantum,q-agt

  SERVICE_HOST=[IP of controller node]

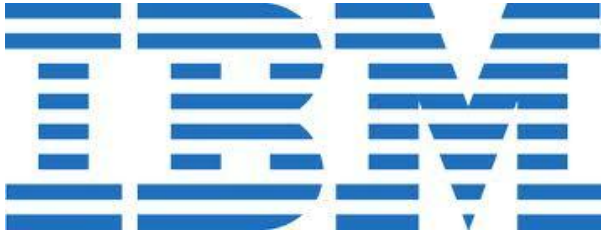
  MYSQL_HOST=$SERVICE_HOST

  RABBIT_HOST=$SERVICE_HOST

  Q_HOST=$SERVICE_HOST

感谢社区Contributors： http://wiki.trystack.cn/main

感谢以下Trystack社区合作伙伴和赞助商：



感谢以下媒体合作伙伴的大力支持：

Come join us! Try it now !

Thanks!

申请加入@trystack社区，请关注微博或加入邮件列表：

trystack-china@googlegroups.com

Don't believe me,believe yourself. Give it a try!