TRYSTACK.CN

Folsom in practice

— Learn OpenStack from trystack.cn

@ben_duyujie **2012 Chengdu**

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Who am I ?

-OpenStack Evangelist

-Co-founder of COUSG

-OpenStack Foundation board member

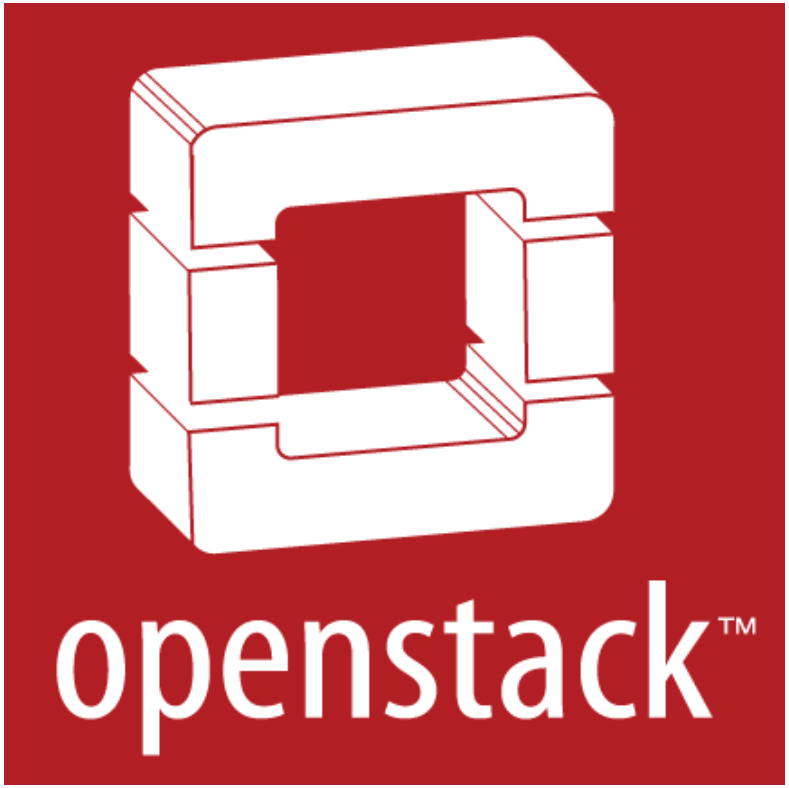
who is this talk for?

- wants to learn more about OpenStack

- for supporting trystack ***@trystack*** *on weibo*

Open Style

- Open Source –Apache 2.0 license, Contributors agreement.
- Open Design –Design Summit every six months.
- Open Development - managed via Launchpad & gihub.
- Open community – ***Lazy consensus*** model, OpenStack Foundation in 2012.



Road to the OpenStack Foundation

July 2010
OpenStack community established

October 2011
Announced plans to launch independent Foundation in 2012

Jan/Feb 2012
Created framework for Foundation as a community

April 2012
19 companies announce support for Foundation; form Drafting Committee

June/July 2012
Drafting committee produces and publishes three rounds of legal documents

July 18, 2012
Final legal documents posted for ratification

August 2012
Individual & Gold Director elections; first Board of Directors meeting

Sept 19, 2012
OpenStack Foundation Launch!

openstack™
CLOUD SOFTWARE

WELCOME TO OPENSTACK NATION!

★ POPULATION 5,600 & GROWING! ★

MEET THE

TECH COMMITTEE

SOFTWARE DEVELOPMENT & DIRECTION

13 TOTAL MEMBERS
(ELECTED BY ACTIVE TECH CONTRIBUTORS)

5 DIRECT ELECTS

8 PROJECT TECH LEADS
(FROM THE 8 PROJECTS)

550+k LINES OF CODE

550+ TOTAL DEVELOPERS

300+k DOWNLOADS

INTRODUCING THE

BOARD of DIRECTORS

PROTECT, PROMOTE, & EMPOWER

APPOINTED	ELECTED	ELECTED
8	8	8
PLATINUM *(OUT OF 8 MEMBERS)*	GOLD *(OUT OF 13 MEMBERS)*	INDIVIDUAL *(OUT OF 5,600 MEMBERS)*

MEET THE

USER COMMITTEE

USER ADVOCACY AND FEEDBACK

5600 INDIVIDUAL MEMBERS

850 ORGANIZATIONS

THE NEW

FOUNDATION STAFF & SHARED RESOURCES

INFRASTRUCTURE & TESTING, COMMUNITY BUILDING

Foundation Membership

- **Individual Members**

  Free to join, run, vote

  http://www.openstack.org/join

- **Platinum Members**

  Contribute funds, full-time employees

  Appoint one director to the board

- **Gold Members**

  Contribute funds

  Elect members to the board from their class

What's next

- **2013 Board Elections**
  - Individual Member nominations closed December 7th, 2012
  - Elections taking place January 14-18, 2013
  - See openstack.org/election
- **Grizzly Release**
  - Scheduled for April 4 with 195 total blueprints
  - First milestone released November 23 with 40 blueprints
- **OpenStack Summit**
  - Details coming soon for April 2013 Summit
  - First International Summit planned for October 2013

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OpenStack Community companies

Nov 2012, From http://www.openstack.org/foundation/companies/

Some OpenStack Public Use Cases

- 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/
- HPCloud
  - https://www.hpcloud.com/

Where can find OpenStack ?

- http://trystack.org/
  - Register to try out a test public OpenStack cloud
- http://devstack.org/
  - Script to setup simple/developer installs
  - Currently Ubuntu centric
  - fedoraproject.org/wiki/OpenStack_devstack

A free openstack test environment

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让您全方面感受OpenStack的魅力.

We've set up large clusters of hardware running OpenStack on cross data centers. It's totally free for you to try & test your apps

By Stackers, for stackers.

由OpenStack中国用户社区共同维护的一个OpenStack测试平台

Built at China by 99cloud and China OpenStack User Group (COSUG), ...

Made for everyone and it's free.

TryStack.cn不仅仅是一个测试平台，它承载着OpenStack中国地区用户对开源项目的期望和关注，并且它完全免费。

TryStack.cn was made to not only a test platform and it's totally free for everyone.

Deployed with full features.

TryStack.cn使用最新版本的OpenStack搭建，向您全方位的展现OpenStack的魅力。

TryStack.cn will pack with OpenStack Folsom, it brings all new experiences with OpenStack, a open cloud magic.

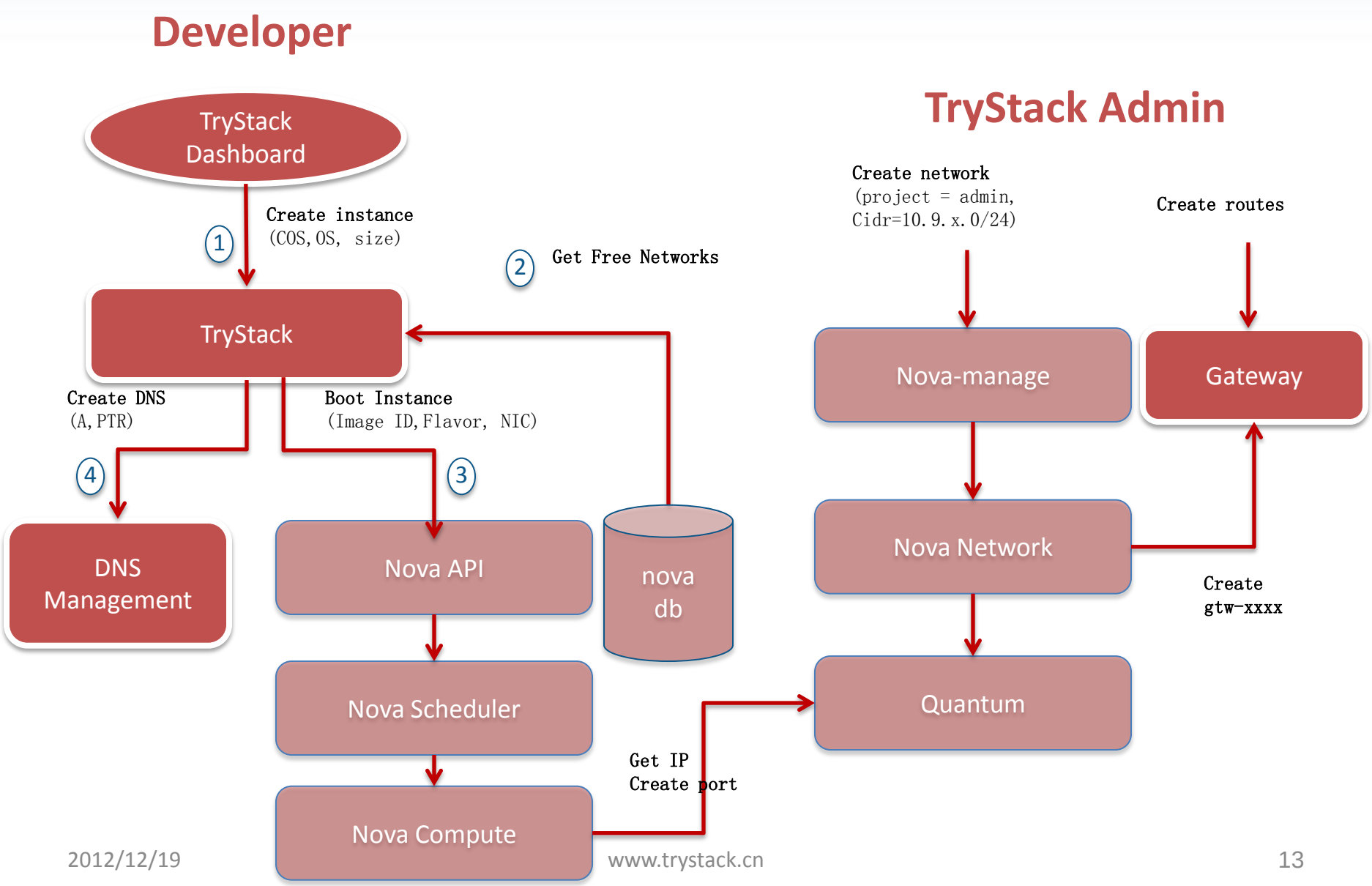
Welcoming contributions and feedback, Join the fun !

Announced in OpenStack Summit San Diego 2012

Slides are on slideshare for download:

www.slideshare.net/openstack/trystack-introfinalpdf

Work flow


Developer
TryStack Admin
TryStack Dashboard
Create instance
(COS, OS, size)
1
2
Get Free Networks
TryStack
Create DNS
(A, PTR)
Boot Instance
(Image ID, Flavor, NIC)
4
3
DNS Management
Nova API
nova db
Nova Scheduler
Nova Compute
Get IP
Create port
Quantum
Create network
(project = admin,
Cidr=10.9.x.0/24)
Create routes
Nova-manage
Gateway
Nova Network
Create
gtw-xxxx

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Who are trying?

A single region: the“CloudFoundry Region“ for VMWare team

- 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

Doing what: CloudFoundry doesn't work on folsom

- https://groups.google.com/a/cloudfoundry.org/forum/?fromgroups=#!topic/bosh-users/0mzvv5HLQ5o

Nass?

- Cloud Servers”
  - On-demand, Elastic, Measured server provisioning
- Cloud Storage
  - Scalable/fault tolerant storage with object stores
- Cloud Networks
  - How to do on-demand, elastic, measured networking provisioning ?
  - **How to program the network ?**

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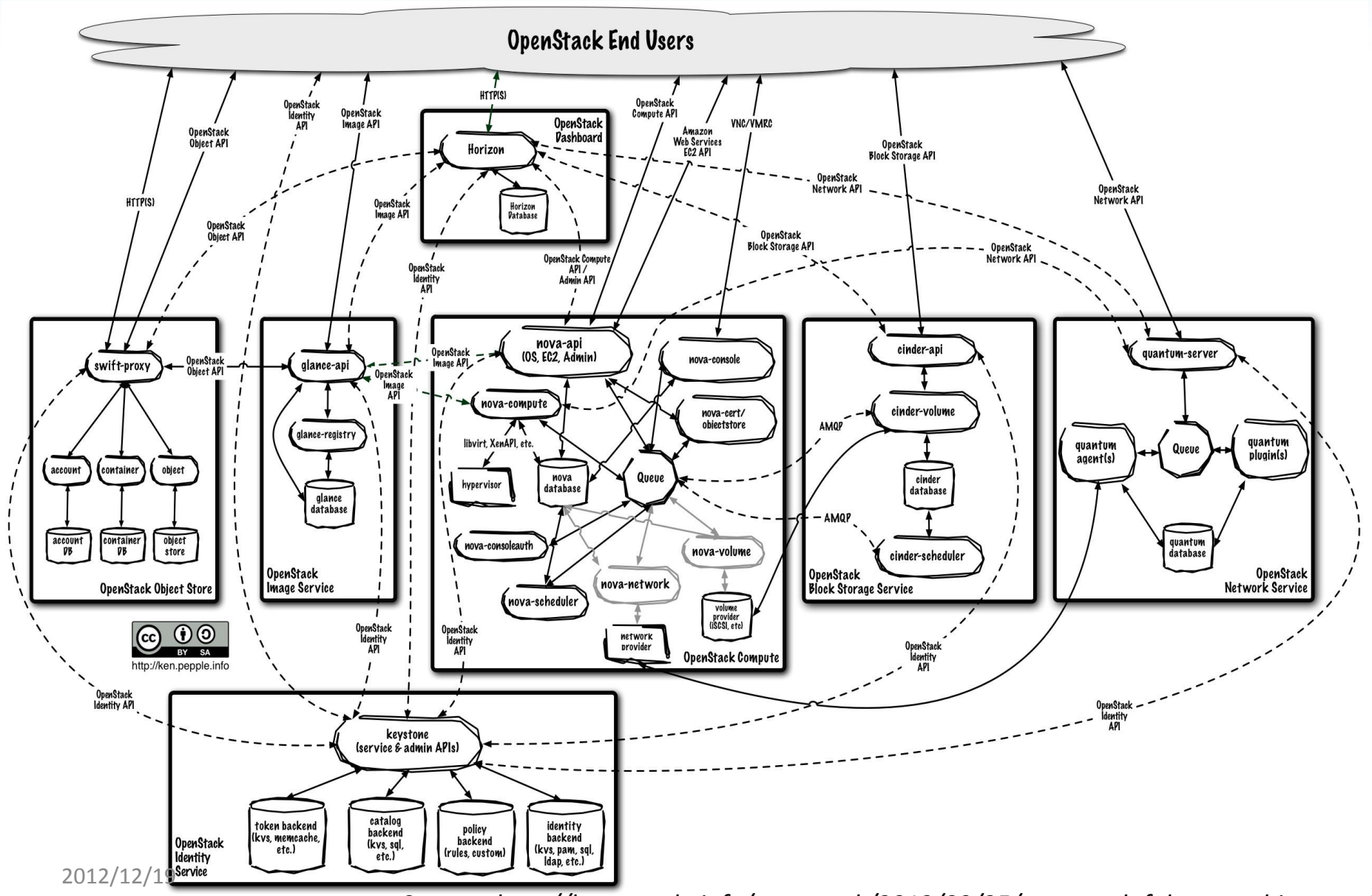
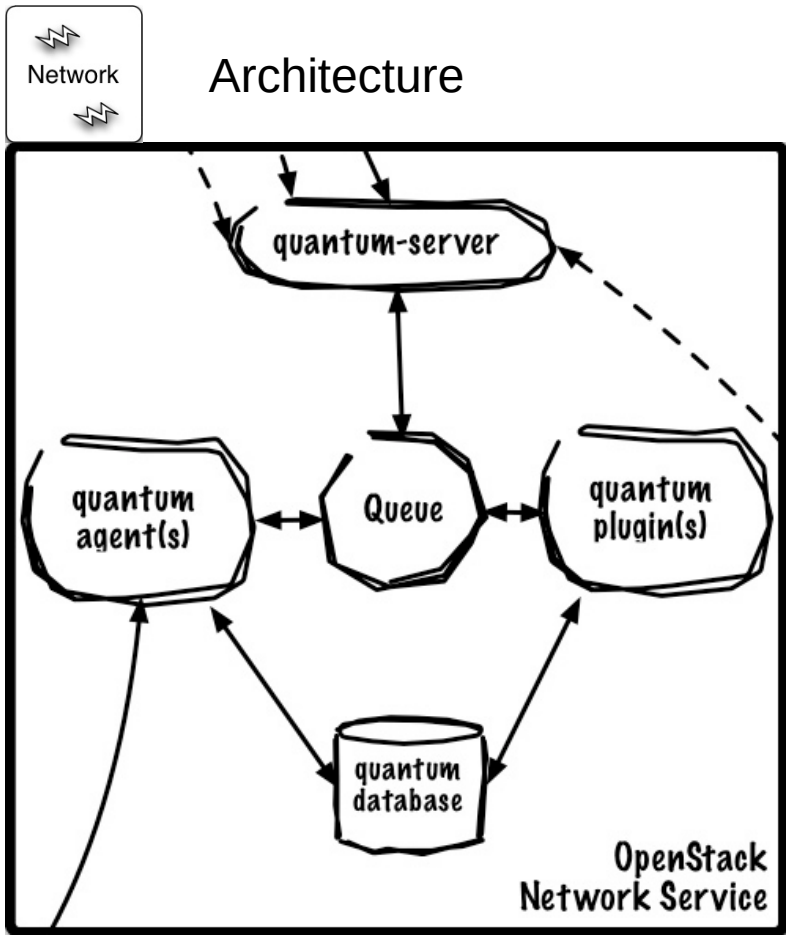


Source: http://ken.pepple.info/openstack/2012/09/25/openstack-folsom-architecture/

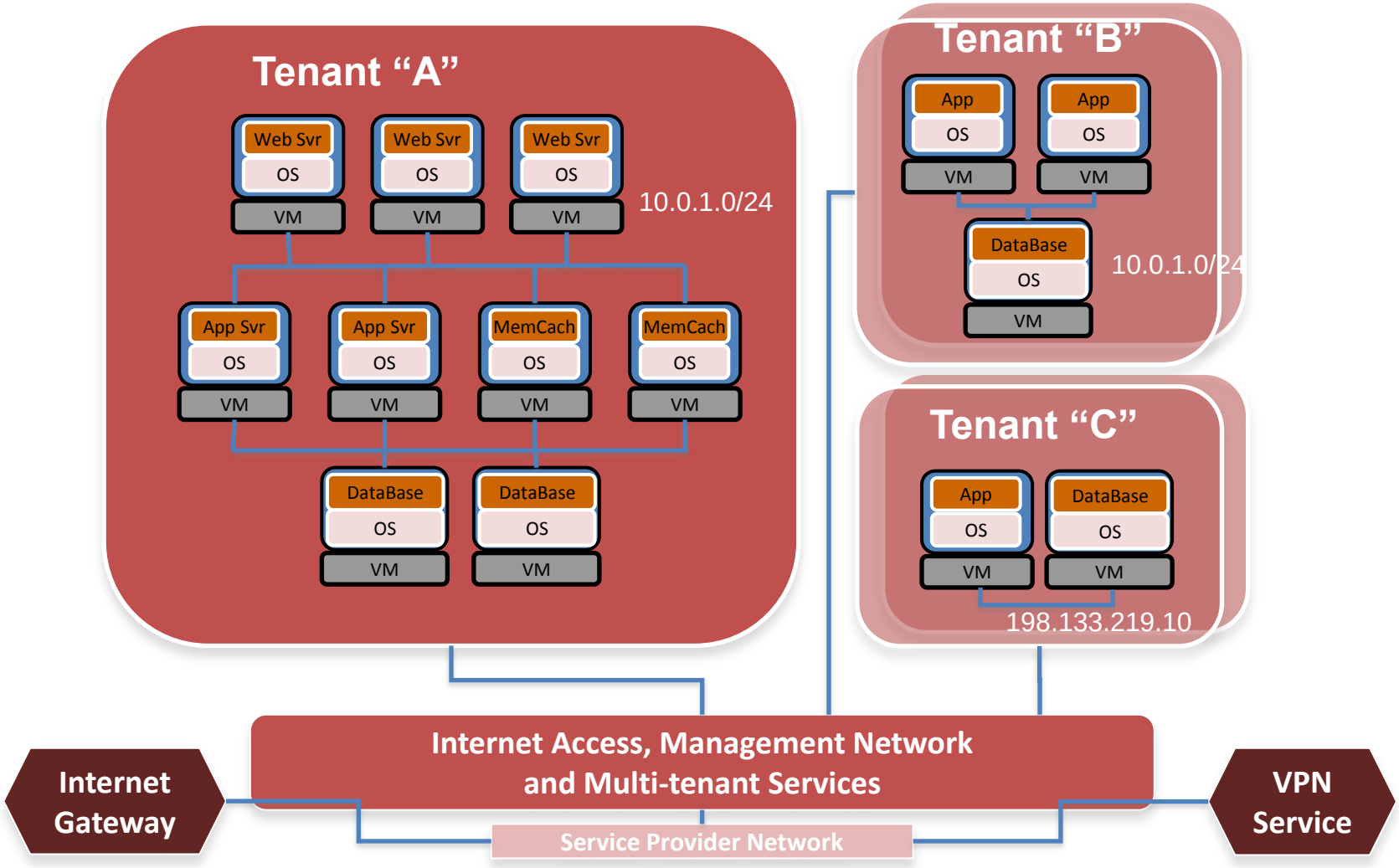
Network connectivity as a service



Key Capabilities:

- Responsible for managing networks, ports, and attachments on infrastructure for virtual resources
- Create/delete tenant-specific L2 networks
- L3 support (Floating IPs, DHCP, routing)
- Moving to L4 and above in Grizzly
- Attach / Detach host to network
- Similar to dynamic VLAN support
- Support for
  - Open vSwitch
  - OpenFlow (NEC & Floodlight controllers)
  - Cisco Nexus
  - Niciria

Different tenants and applications have different needs

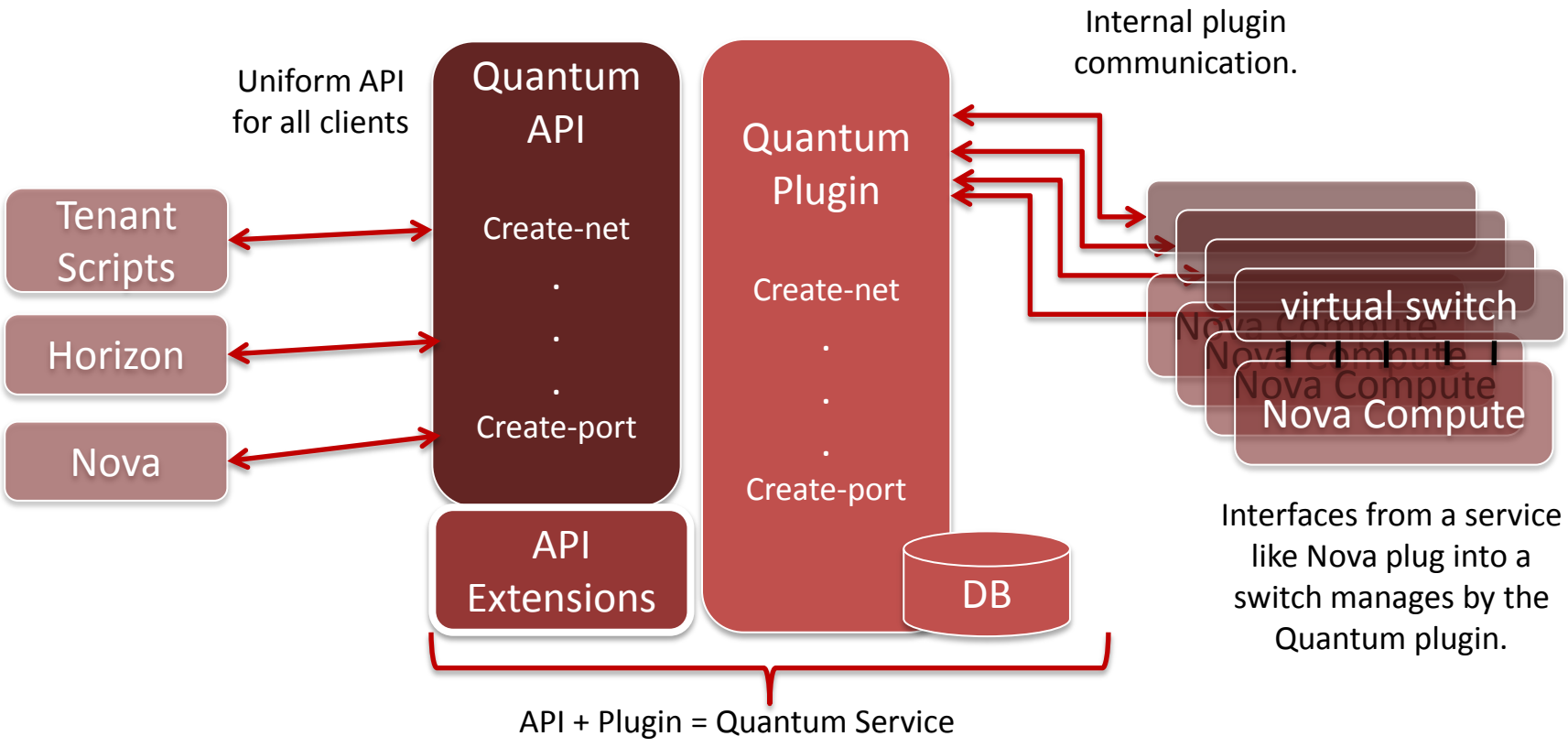


Networking challenges in a private Cloud

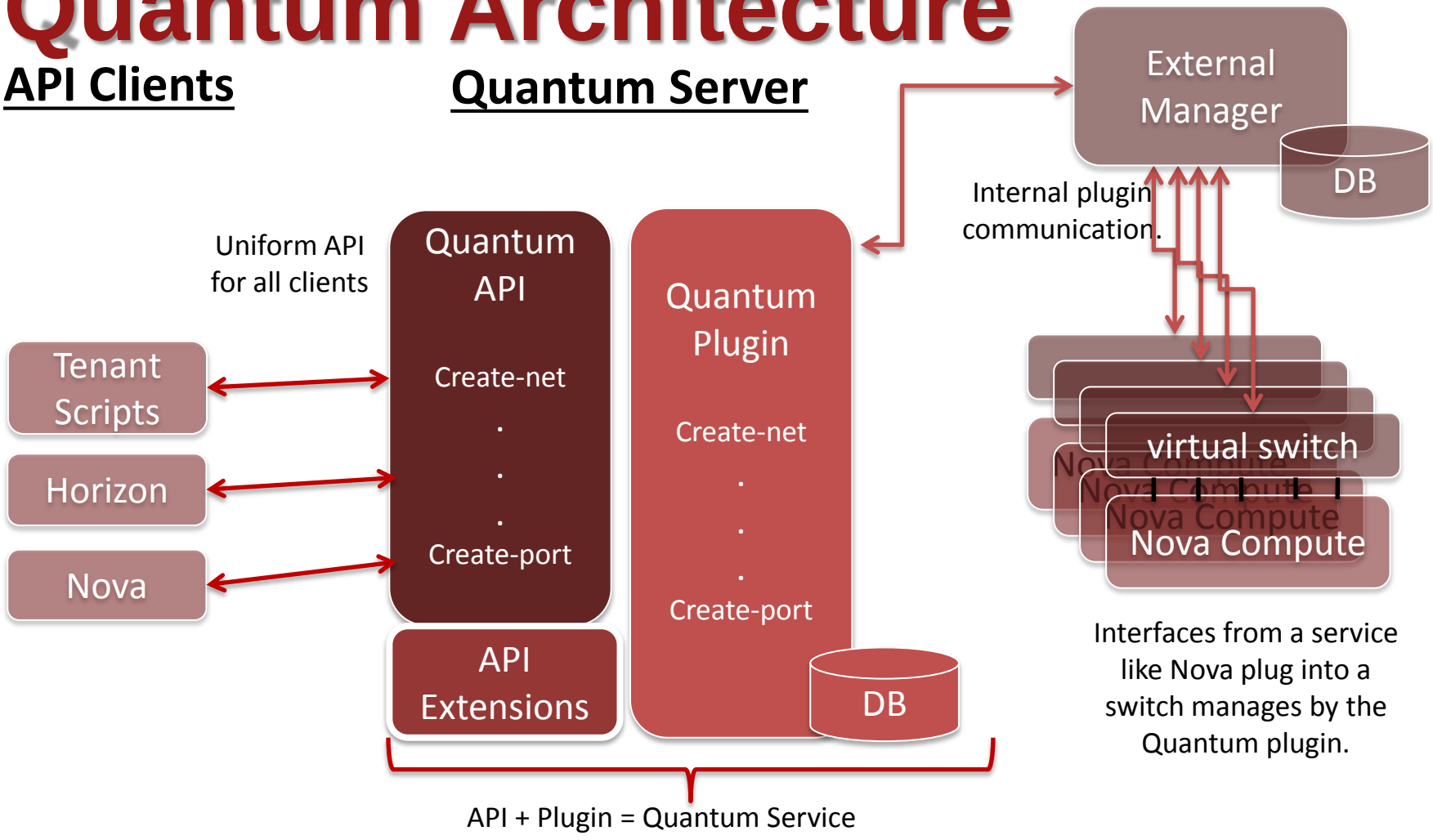
- Multi-tenants on hypervisors => isolation between guest networks
- VLANs in the datacenter is hard and **limit at 4096 VLANs.**
- Hardware switches may not do it very well or have a lower limit

Quantum Architecture

API Clients **Quantum Server**



Quantum Architecture



Quantum 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

Networking trend

- Move to software switches
- Move to L3 isolation
- Use tunnels between OVS (GRE tech preview)
- **Program the network through API**
- Encapsulation virtualizes the network, between overlays on overlays on overlays..
- L3 on L2 on GRE on L3 on L2…
- Then you bring the WAN and you have:
- **L3 on L2 on GRE on L3 on L2 on GRE on L3 on L2 ….Euhhhh !!!**

Try it now !

- Thank you to our Partners/Sponsors:
  - Intel,IBM, Sugon suport hardware
  - VMWare cloudfoundry team testing
- Many thanks to our Contributors:
  http://wiki.trystack.cn/main

Don't believe me.
Believe yourself.
Give it a try.

Thanks!

QQ Group: 162033258

Weibo: @trystack

trystack-china+subscribe@googlegroups.com

Questions ? Come join us !