

# XenSummit

## OpenStack, Xen and XCP

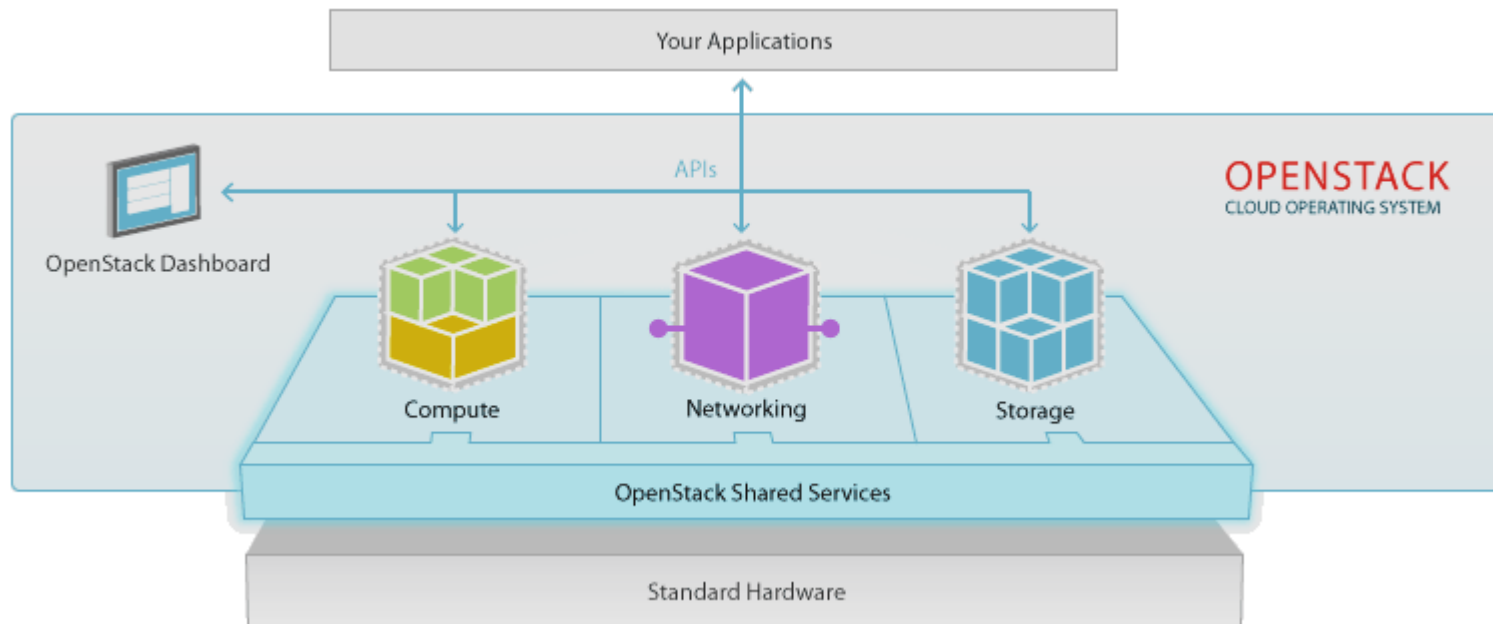
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Senior Software Developer, Cloud, Citrix  
@johngarbutt



August 27-28, 2012  
San Diego, CA, USA

# What is OpenStack?



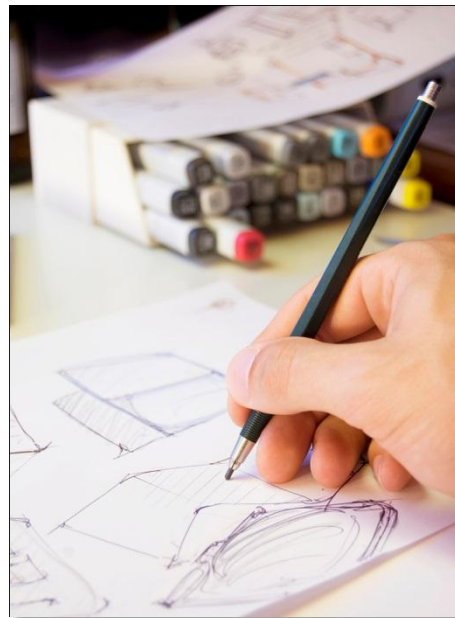
# OpenStack

- Open Standard Cloud Computing Platform
- Public and Private Clouds
- Massively scalable and feature rich
  
- Open Development
- Open Design
- Open Community
  
- 3386 People, 200+ Contributors, 186 Companies



# Design Guidelines

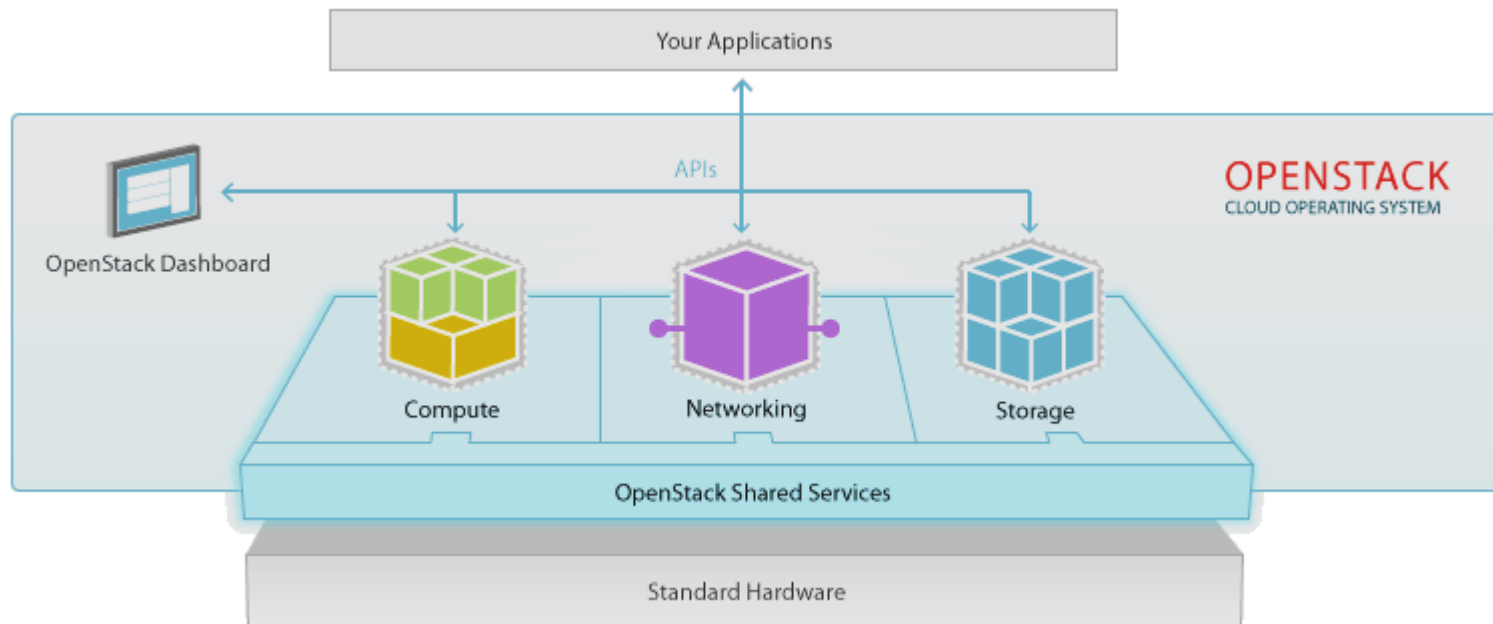
- Component based architecture
- Highly available
- Fault-Tolerant
- Recoverable
- Open Standards
- API Compatibility



# Releases

- Folsom
  - under development
  - due September 2012
  - this talk covers Folsom
- Essex
  - current stable release
  - first released April 2012
- Six monthly Release + Conference
- Next: Grizzly due April 2013





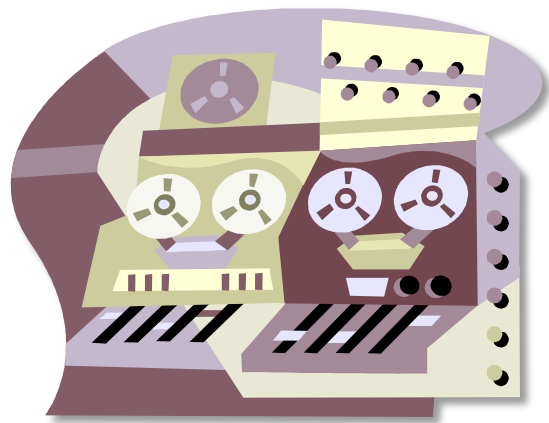
# Object Storage

- Swift
- User: Account, Container, Object
- Redundant storage of static data
- Scales horizontally to PB of data
- Uses eventual consistency
- Admin: Rings, Proxy, Replication, Updaters, Auditors
  
- Contributed by Rackspace



# Compute

- Nova
- Concepts: Server, Flavor, Image, Metadata
- Multi-hypervisor: KVM, XenAPI, ...
- Bare-metal provisioning
- Availability Zones
- Scheduling
  
- Contributed by NASA / Anso Labs



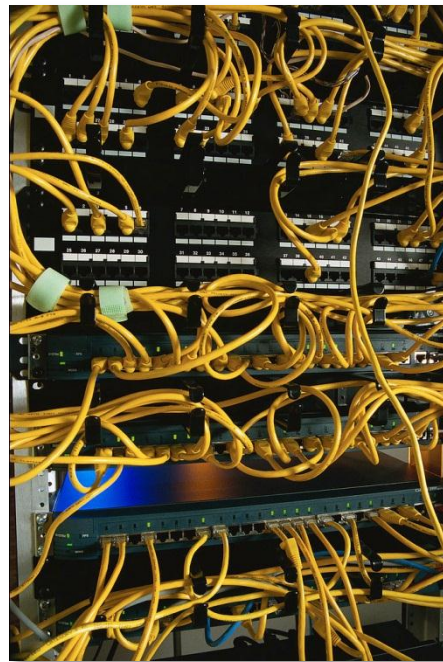
# Block Storage

- Cinder
- Persistent block level storage device
- Create, attach/detach, snapshot
- Pluggable backend:
  - iSCSI, Ceph and others
- Least developed area
- Evolved from nova-volume



# Networking

- Quantum
  - Concepts: Network, Port, Attachment
  - Network Isolation
  - Floating IPs, Security Groups
  - Support for SDN
  - Other services: DHCP, DNS, Firewall, QoS, LBaaS...
- 
- Replaces nova-network



# APIs

- APIs to configure virtual resources
- OpenStack REST APIs
  - Compute
  - Image
  - Object Storage
  - Identity
  - Network
  - Volume / Block Storage
- Amazon APIs
- Standard APIs



Instances & Volumes - Open

Instances & Volumes

Logged in as: admin Settings Sign Out

Success: Instance "test-www.demo.com" launched.

Instances Launch Instance Terminate Instances

<input type="checkbox"/>	Instance Name	IP Address	Size	Status	Task	Power State	Actions
<input type="checkbox"/>	<a href="#">test-www.demo.com</a>	10.4.128.20	4GB RAM   2 VCPU   10.0GB Disk	Active	None	Running	<span>Edit Instance</span>
<input type="checkbox"/>	<a href="#">test-www.demo.com</a>	10.4.128.19	4GB RAM   2 VCPU   10.0GB Disk	Build	Spawning	No State	<span>Edit Instance</span>
<input type="checkbox"/>	<a href="#">myserve</a>	10.4.128.18	2GB RAM   1 VCPU   10.0GB Disk	Active	None	Running	<span>Edit Instance</span>
<input type="checkbox"/>	<a href="#">myserver</a>	10.4.128.16	2GB RAM   1 VCPU   10.0GB Disk	Active	None	Running	<span>Edit Instance</span>

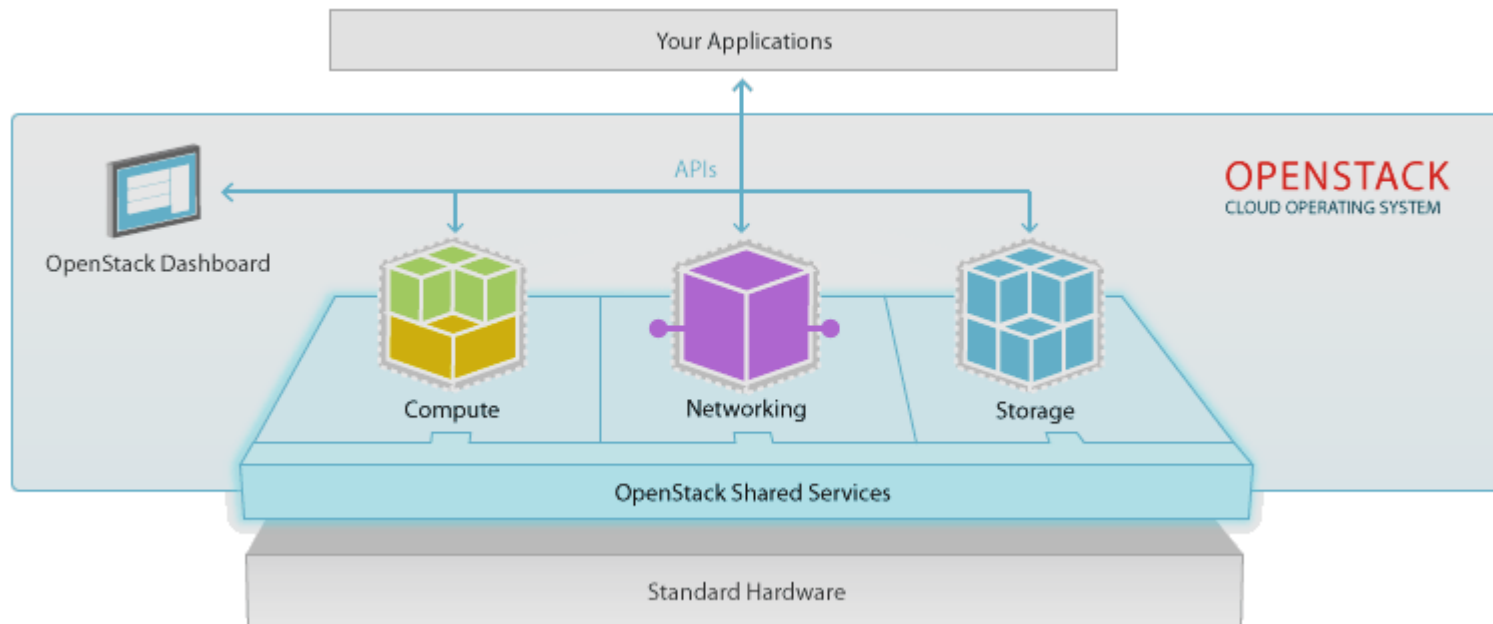
Displaying 4 items

Volumes Create Volume

<input type="checkbox"/>	Name	Description	Size	Status	Attachments	Actions
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# Other Services

- OpenStack **Keystone**: Users, Roles and Service Catalog
- OpenStack **Glance**: Images and Snapshots
  
- Database: SQLAlchemy
- Message Queue: RabbitMQ and others



# Other Projects

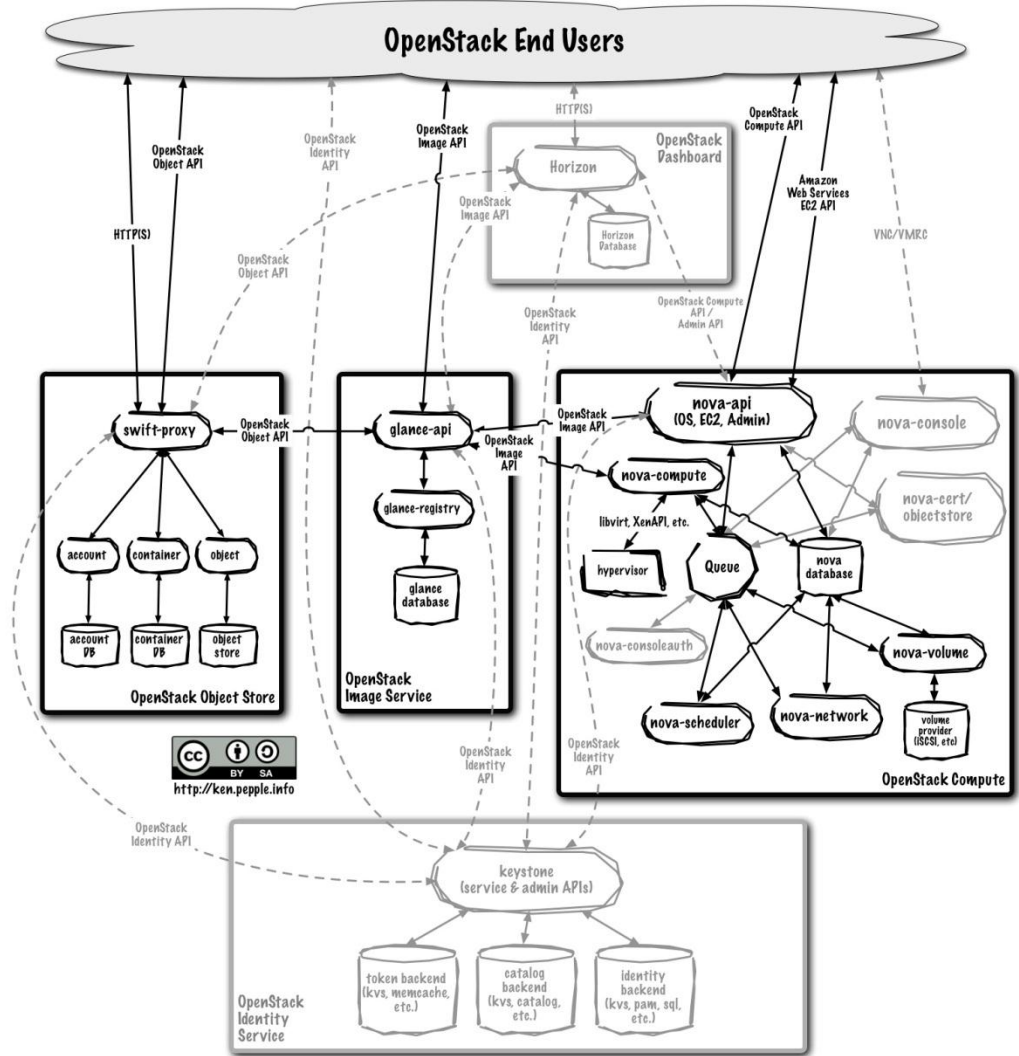
- Heat
- Ceilometer
- Reddwarf
- LBaaS
- Devstack
- Crowbar

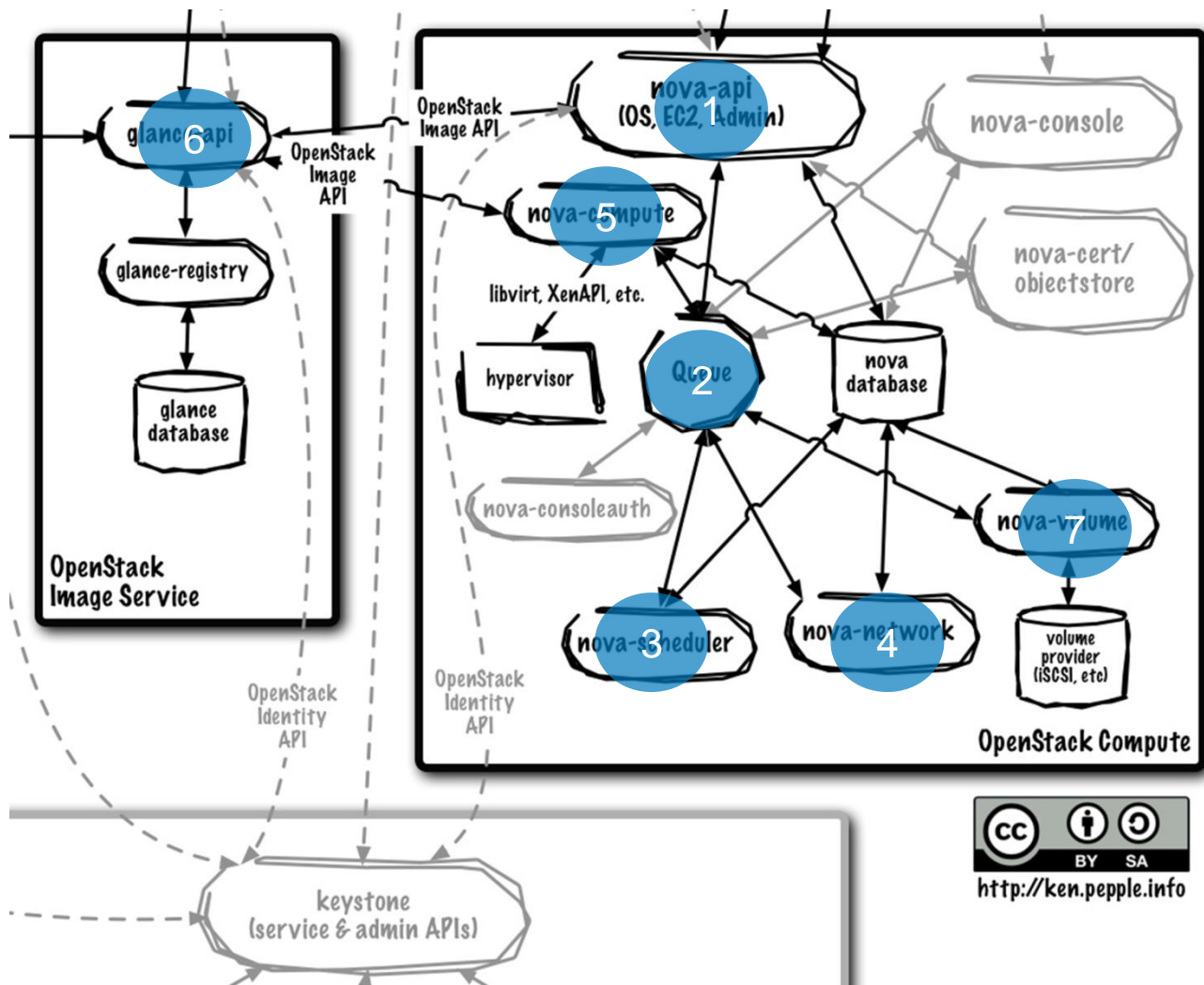
# How does OpenStack work?

# Demo Time!

... let's start a VM

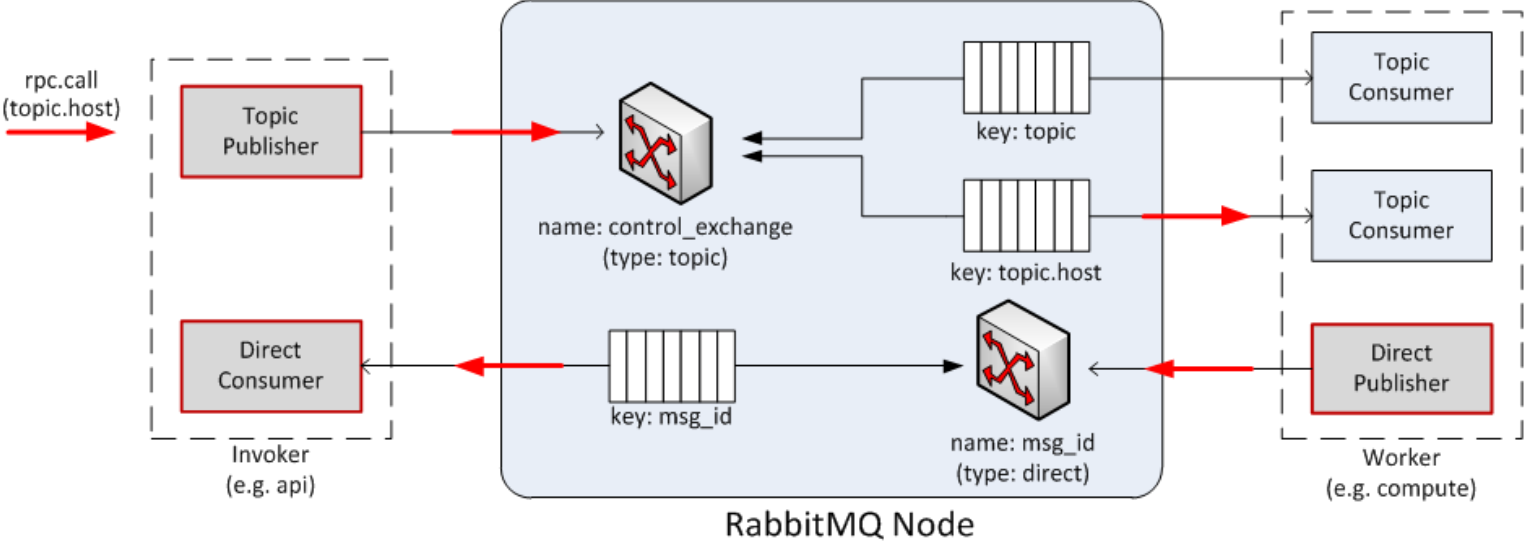
# How does OpenStack work?





<http://ken.pepple.info>

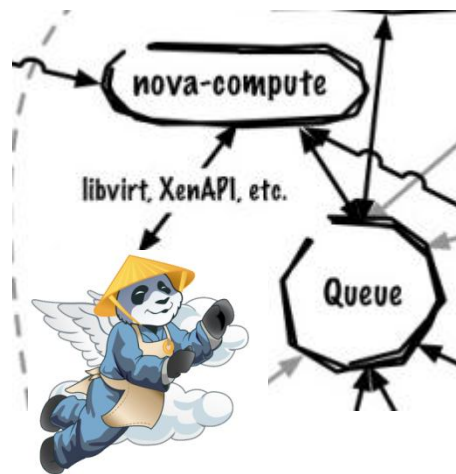
# RPC using AMQP



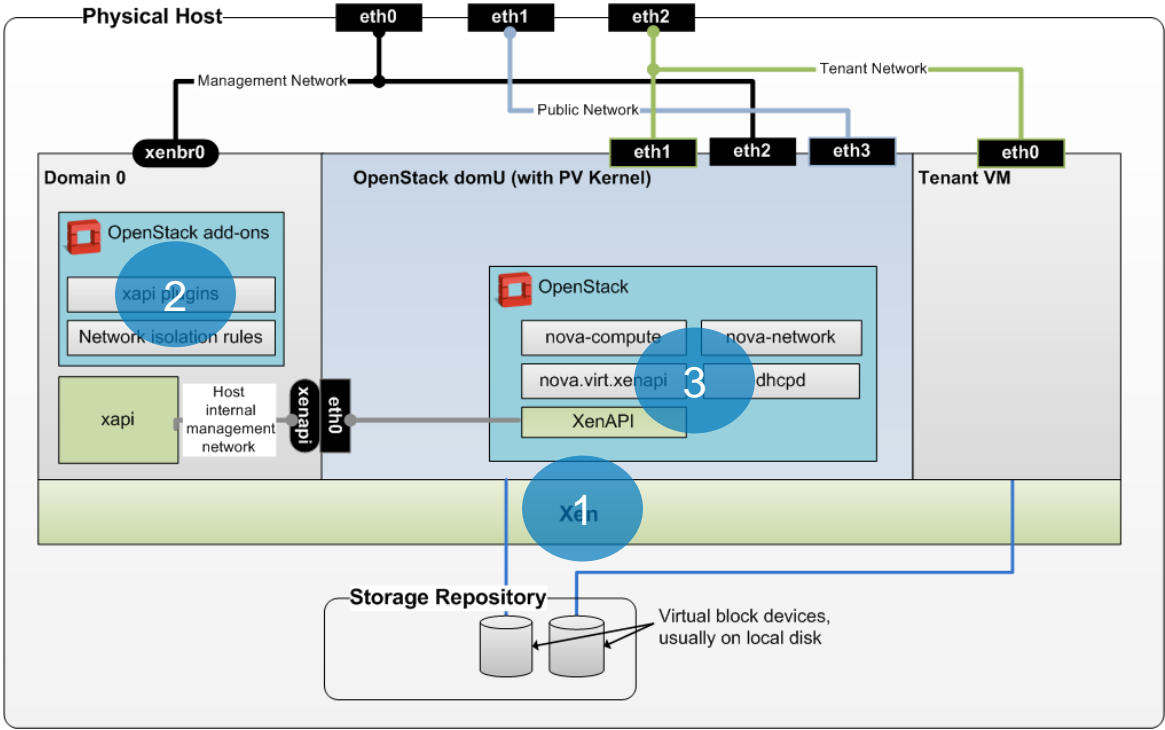
# How does OpenStack use Xen?

# OpenStack and Xen

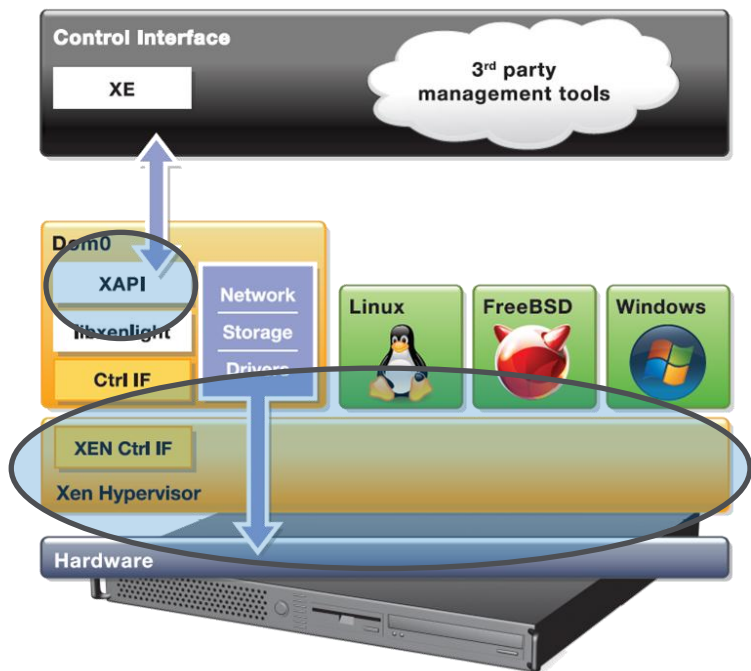
- XenAPI
  - Used by Rackspace Public Cloud
  - Still developed by Citrix
  - XCP
  - XenServer
  - XCP-XAPI
- Libvirt + Xen
  - Not widely used
  - SUSE working
- <http://wiki.openstack.org/HypervisorSupportMatrix>



# OpenStack and XenAPI



# What is XCP?



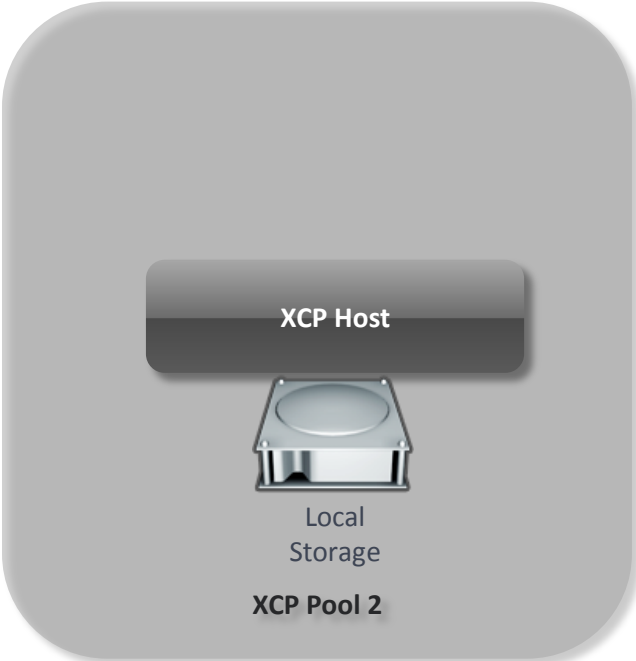
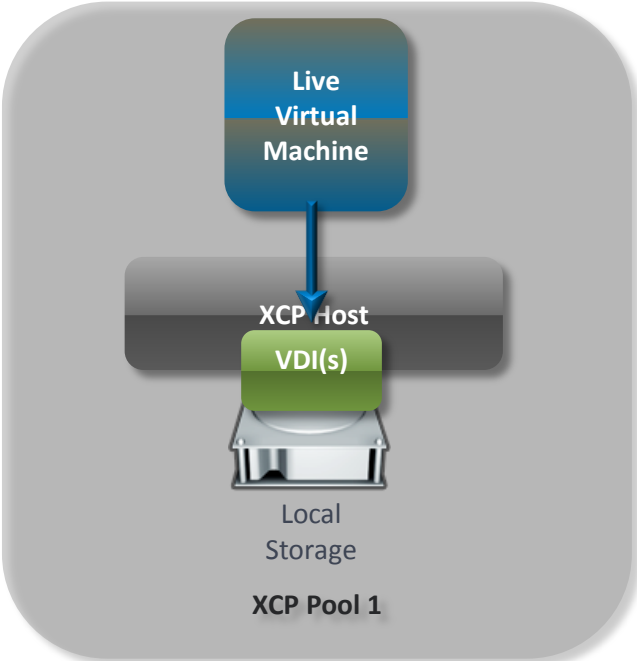
- XCP = Xen Cloud Platform
  - Open Source Citrix's XenServer
  - Datacenter and cloud-ready API
  - Complete virtualization stack
- 
- xcp-xapi
  - iso

# Citrix and OpenStack?

# Citrix and OpenStack

- Still have an OpenSource team
- Maintain and improve XenAPI support
- Expose latest XenAPI features
- Documentation
- QA

# Storage XenMotion



# Demo Time!

... let's move a VM

**How can I get involved?**

# OpenStack Community

- <http://www.openstack.org/community>
- Email list and LaunchPad
- Sign CLA
- Clone from GitHub
- Pick Bug or Blueprint
- Submit to Gerrit
  
- Enjoy 😊



# Join with Xen Community?

- Xen Doc Day
- Xen Test Day
  
- Work on OpenStack issues
  
- Ideas?

**CITRIX<sup>®</sup>**

**Work better. Live better.**