

Openstack July Meetup 2012

Overview and InstallFest

Deepak Garg
Citrix R&D, Bengaluru
deepakgarg.iitg@gmail.com



Openstack July Meetup 2012 by [Deepak Garg](#) is licensed under a [Creative Commons Attribution-ShareAlike 3.0 Unported License](#).
Based on a work at www.slideshare.net/khinnu4u/presentations.

Contents

- Infrastructure ?
- IaaS
- Why IaaS ?
- My DC !
- How it looks to the User !
- Components
- Simple WorkFlow
- Openness and Culture
- Community in India

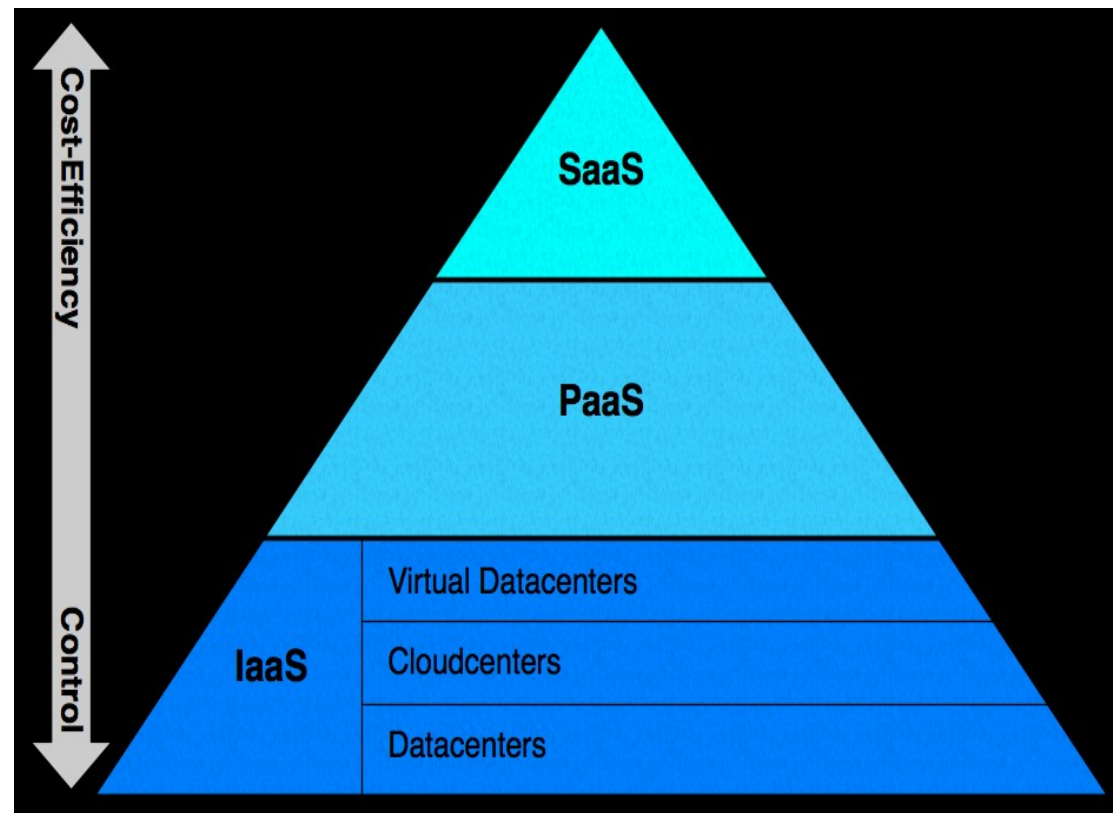
Infrastructure ?

- Physical Servers
- L2/L3 Switches
- Storage – all types
 - ✓ Cost Efficiency
 - ✓ Space Efficiency
 - ✓ Usage Efficiency
 - ✓ Should Work !

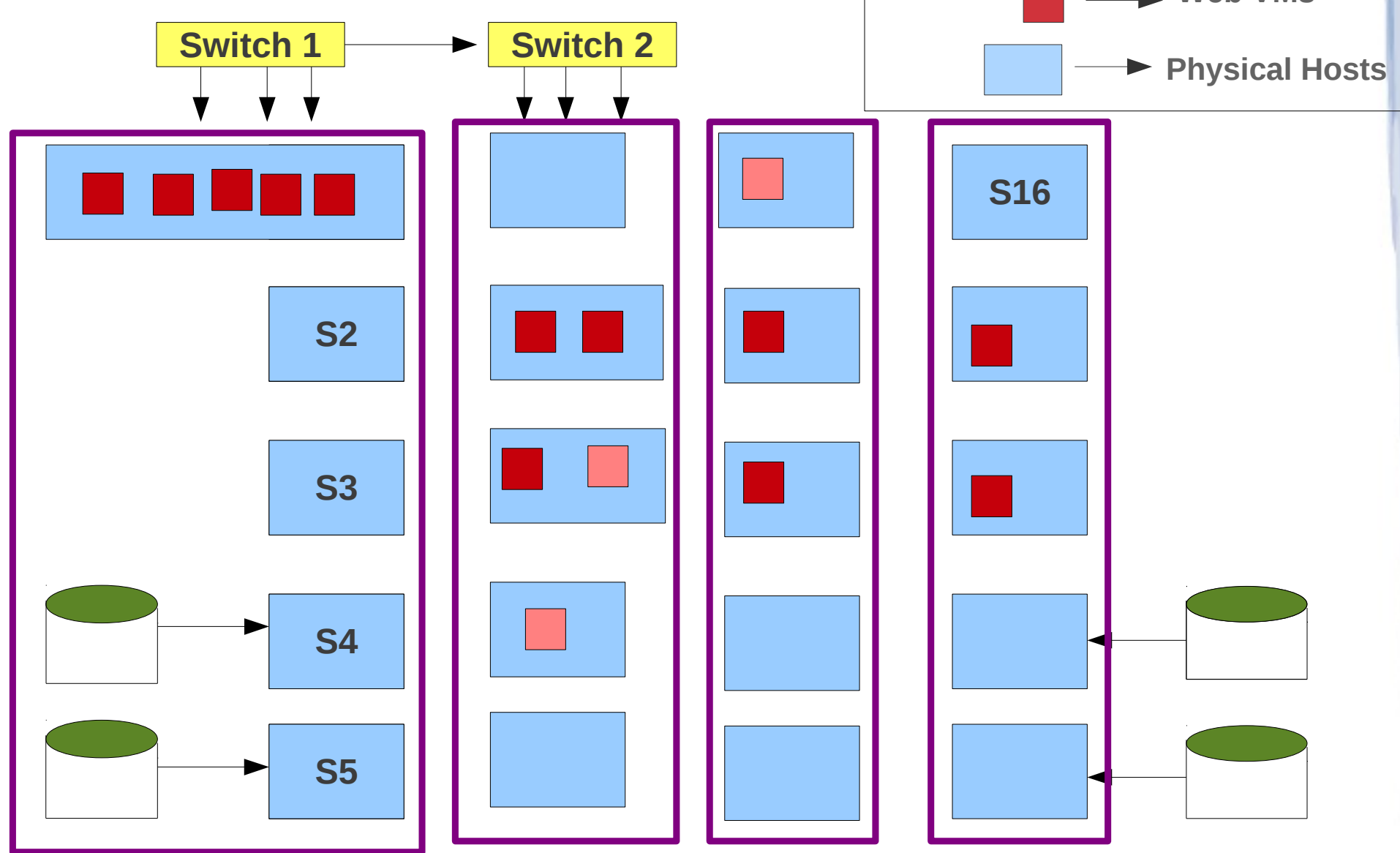
IaaS

- Compute as a Service → VMs
- Storage as a Service → *Storage space*
- Networking as a Service → *configure the kind of networking you need*

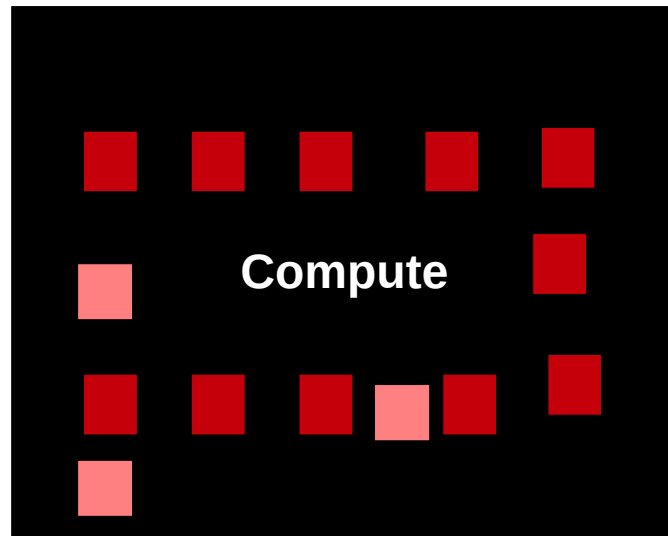
IaaS PaaS SaaS



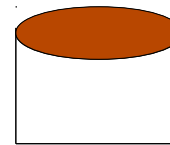
My DC !



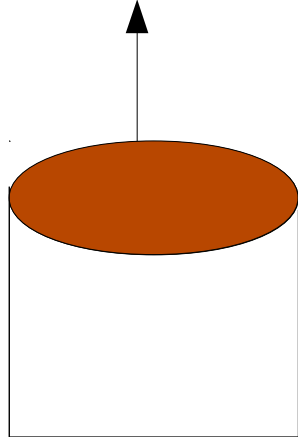
How it looks to the User !



Pooling the compute.
To the user, it can serve
scalable and infinite
compute on demand



Pooling the storage. To
the user, it can serve
scalable and infinite
storage on demand



✓ *Abstraction*

✓ *Scalable*

✓ *On-Demand*

Openstack Components

- Nova – Openstack Compute
- Swift – Openstack Object Storage
- Glance – Openstack Image Service
- Keystone – Openstack Identity Service
- Horizon – Openstack Dashboard
- Quantum – Openstack Networking Service
- Others:
 - Atlaas – Load Balancing as a Service

Nova

- VM lifecycle → provisioning, maintaining
- ~ Amazon EC2, RAX Cloud Servers, VPS
- Also provides volume service ~ EBS
- Further divided into logical components: nova-api, nova-compute, nova-network,
 - nova-schedule:- decides which physical host the VM should run. Scheduling algos can be very simple or very complex
 - nova-api:- provides endpoint for OS/EC2 API, initiates req.
 - nova-compute:- lifecycle of VMs
 - nova-volume:- creates, attaches, detaches persistent vols
 - nova-network:- provisioning vifs, firing iptable rules

Swift

- Object Blob Store
- ~ Amazon S3 or RAX Cloud Files
- Distributed architecture -- no SPOF, scale horizontally
 - Proxy Server:- provides API endpoint
 - Account Server:- manage accounts
 - Container Server:- maps containers (folders)
 - Object Server:- manage actual files/objects

Keystone

- Users and Tenants management
- AuthN and AuthZ services
- ~ Amazon IAM
- All components talk to Keystone
- Give your username/password and get a token
 - Pass token to other services for the API calls you make
 - Services verify that token with Keystone for AuthN / AuthZ
 - Pluggable backend → LDAP, SQL, Key-Value stores

Glance

- Discover, Storage and Retrieval of VM images for Nova
- Can use Swift or any other filesystem for backend storage
- Optional component but recommended
 - glance-api:- provides api endpoint
 - glance-registry:- metadata about images
 - image-store:- could be swift / S3 etc.

Horizon and Quantum

- GUI for admins, tenants and users
- Uses keystone API for commands
- Quantum:
 - plays with switches → physical and virtual
 - pluggable architecture → drivers available for OVS, Nicira, Cisco etc., write your own proprietary driver

Instances – OpenStack Dashboard - Mozilla Firefox

↓

↑

×

DateiBearbeitenAnsichtChronikLesezeichenExtrasHilfe

Instances - OpenStack Dashboard

+

10.42.0.6/syspanel/instances/


☆

↺

Google

🔍

🏠



openstack

DASHBOARD

Project

Admin

System Panel

Overview

Instances

Services

Flavors

Images

Projects

Users

Quotas

All Instances

Logged in as: admin

Settings

Sign Out

Instances

Terminate Instances

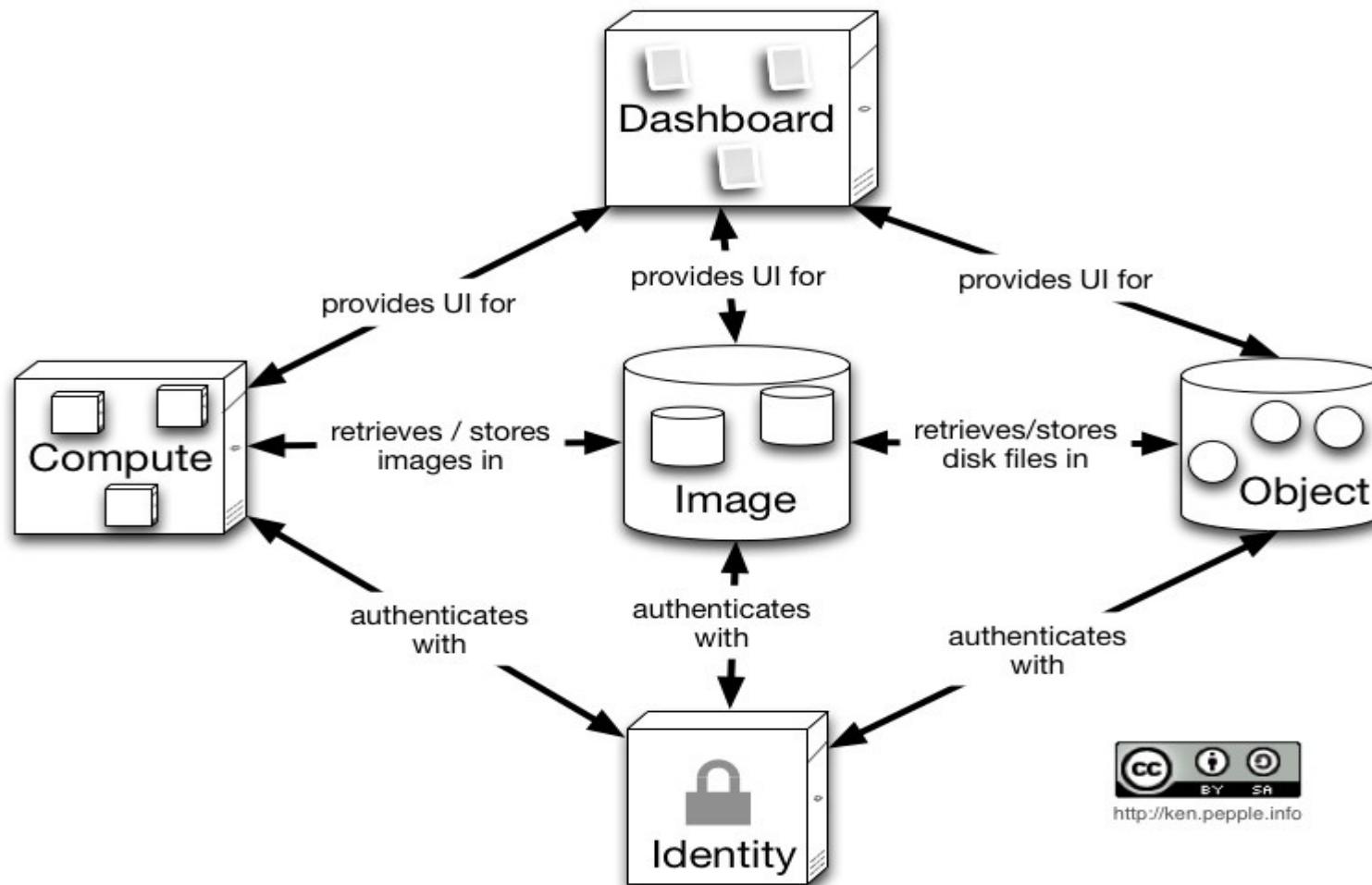
	Tenant	Host	Instance Name	IP Address	Size	Status	Task	Power State	Actions
<input type="checkbox"/>	admin	netbook	superfrobnicator	192.168.22.34	512MB RAM 1 VCPU 0 Disk	Active	None	Running	<div>Edit Instance</div>

Displaying 1 item

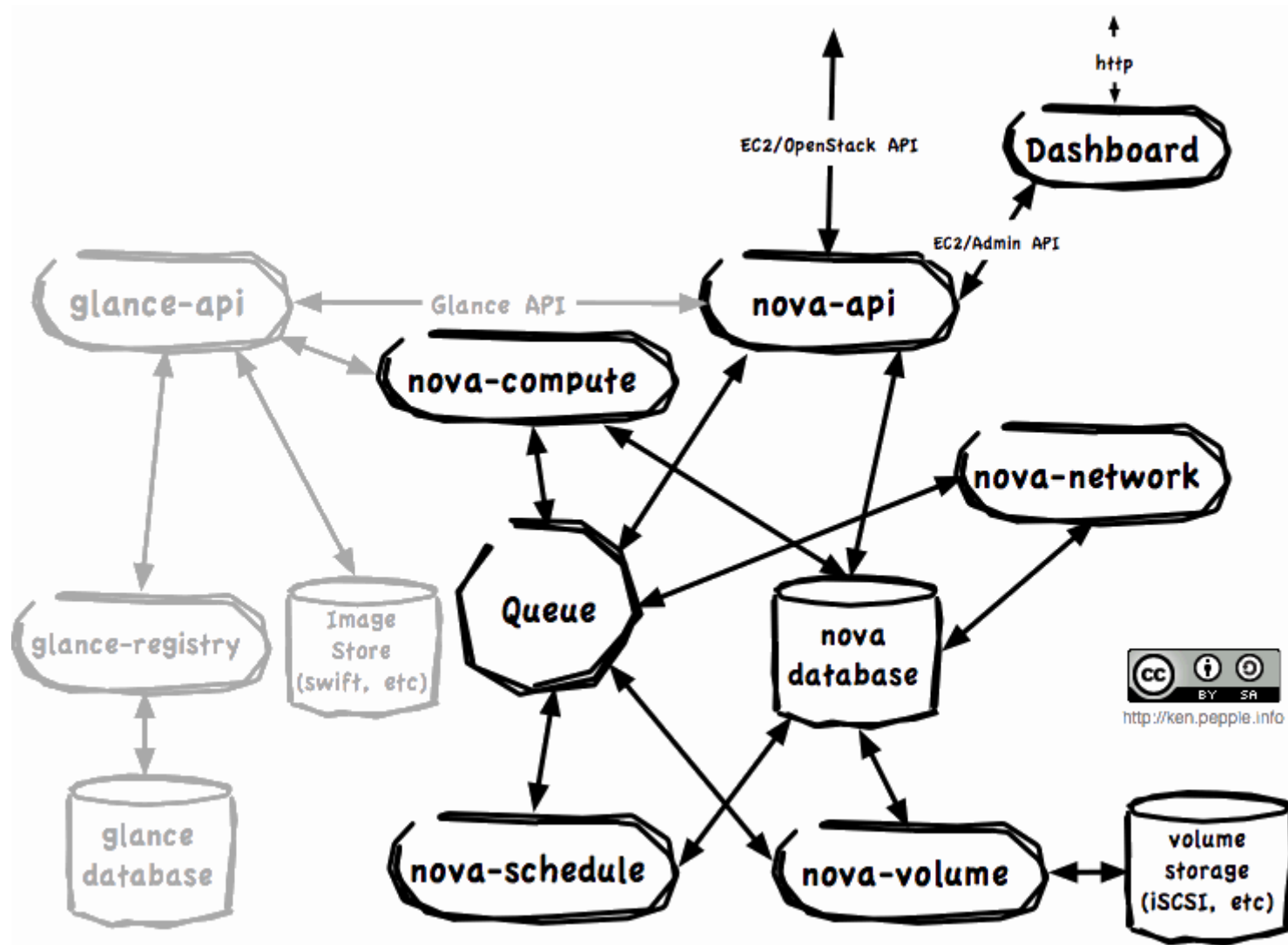
The Others

- Queuing Service → RabbitMQ or any AMQP
- DB → MySql, Postgres, Sqlite
- Apache with mod_wsgi → Dashboard

Simple Workflow



Simple WorkFlow 2.0



Openness and culture

- Open Source → Apache 2.0
- Open Design → Design Summit and Dev conf for every release
- Open Dev → github, Launchpad and gerrit
- Open Community → PTLs and PB members elected by the community

Community in India

- ML: openstackindia@librelist.com
- Meetup Page:
<http://www.meetup.com/Indian-OpenStack-User-Group/>
- LinkedIn: Openstack India community
<http://www.linkedin.com/groups/OpenStack-India-4005742>
- FB: Openstack India User Grp
<http://www.facebook.com/groups/328814400511881/>
- Python Developers Meetup page:
<http://www.meetup.com/Bangalore-Python-Developers-Group/>

Many Thanks !

deepakgarg.iitg@gmail.com

@donji

github.com/gargdeepak