



CHEFTM

CODE CAN

Chef for OpenStack

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HI, HOW ARE YOU



Introductions

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Chef

- Open Source configuration management and systems automation framework
- Infrastructure as Code, written in Ruby
- Abstractions of Resources on the systems
- Client/server model over REST APIs
- Huge, vibrant community of contributors



OpenStack Controls Compute, Storage & Networking



Connects to apps
via APIs



Self-service
Portals for users

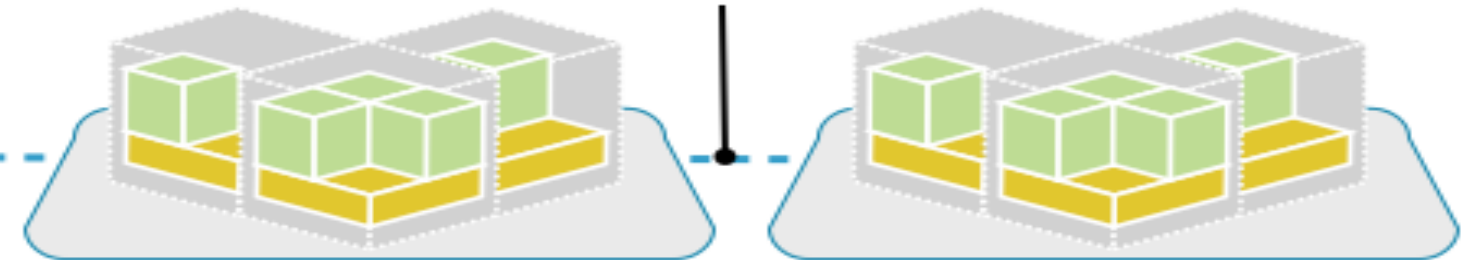


CLOUD OPERATING SYSTEM

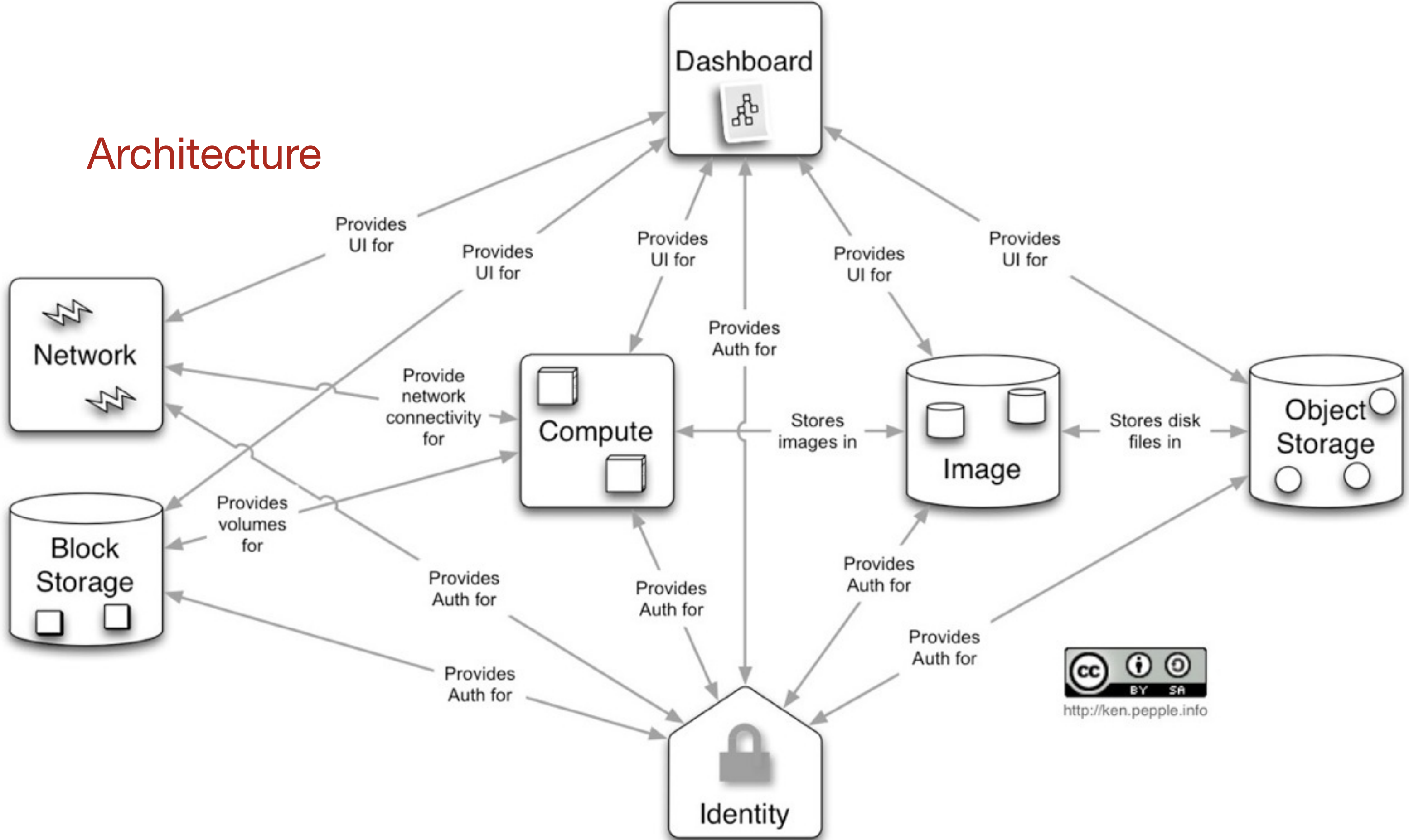
Creates Pools of Resources




Automates The Network



Architecture



<http://ken.pepple.info>



Overview & Current Status of Chef for OpenStack

Chef for OpenStack: Project

- Community around the automated deployment and management of OpenStack
- Reduce fragmentation and increase collaboration
- Deploying OpenStack is not "Secret Sauce"
- Project, not a 'Product'
- Apache 2 License

Community

- [#openstack-chef](#) on [irc.freenode.net](#)
- [groups.google.com/group/opscode-chef-openstack](#)
- [@chefopenstack](#)
- Google Hangout weekly status meetings

Who's Involved?

- AT&T
- Bluebox
- Chef
- Dell
- DreamHost
- HP
- IBM
- Korea Telecom
- Rackspace
- SUSE
- and many more

Chef Requirements

- Chef 11
- Ruby 1.9.x
- Foodcritic, Rubocop, ChefSpec for testing
- attribute-driven by Environments
- platform logic in attributes
- currently packages-only installation



StackForge: Cookbooks

- "Official" OpenStack repositories
 - review.openstack.org
- [github.com/stackforge/cookbook-openstack-*](https://github.com/stackforge/cookbook-openstack-)
- OpenStack services for Havana (and Grizzly) cookbooks
 - block-storage, common, compute, dashboard, identity, image, metering, network, object-storage, orchestration
- Operational support cookbooks
 - ops-database, ops-messaging

StackForge: Launchpad

- Blueprints

- <https://blueprints.launchpad.net/openstack-chef>

- Bugs

- <https://bugs.launchpad.net/openstack-chef>

StackForge: Deployment

- Chef repository for deploying Havana (and Grizzly)
 - example Environments and Roles
 - example "All-in-One" Vagrant deployment
 - github.com/stackforge/openstack-chef-repo
- Gated by review.openstack.org
 - More single and multi-node testing coming

Reference Implementation

- Deployment examples in documentation
 - All-in-One Compute
 - Single Controller + N Compute
 - more coming
- Will provide example HA configurations
- Operations outside of scope of core repository
 - logging, monitoring, provisioning



Chef for OpenStack

OpenStack is a cloud operating system that provides support for provisioning large networks of virtual machines, pluggable and scalable network and IP management, and object and block storage.

This page describes how to use the Chef for OpenStack cookbooks as the basis for managing an OpenStack deployment with Chef, as well as how to participate in the development and maintenance process of these cookbooks. For more information about OpenStack itself, see <http://docs.openstack.org>.



Table Of Contents

Section	Description
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docs.opscode.com/
openstack.html

Cookbooks	All of the cookbooks used by Chef for OpenStack are hosted on github.
knife-openstack	The knife openstack subcommand is used to manage API-driven cloud servers that are hosted by OpenStack.
Example Deployment	A sample Chef for OpenStack deployment.

Documentation

- docs.opscode.com/openstack.html
 - Architecture
 - Deployment Prerequisites
 - Installation
 - Development
 - Cookbooks and Repositories
 - Example Deployments
- github.com/opscode/chef-docs
 - Creative Commons, no CLA required



Example Deployments

- Vagrant "All-in-One" for development/testing
- Developer lab deployment "1+N"
 - Single controller, N compute boxes
 - 5 boxes, consumer-grade hardware
- Chef production deployment "HA+N"
 - HA controller, N compute and storage
 - 30 boxes, enterprise-grade hardware



StackForge: Havana Status

- Operating Systems: Ubuntu 12.04, SLES 11 SP3, RHEL 6
- Databases: DB2, MySQL, SQLite (testing)
- Messaging: Qpid, RabbitMQ
- Compute: KVM, LXC, QEMU
- Network: Nova, Neutron (Open vSwitch)
- Block Storage: LVM, Netapp, others
- Object Storage: Swift
- Dashboard: Apache or Nginx



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StackForge: Roadmap

- branching for Icehouse (Monday?)
 - 'master' move to 'stable-havana'
 - Grizzly available in 'stable-grizzly'
- More contributors!



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StackForge: Roadmap

- Operating Systems: Debian
- Databases: Postgres
- Compute: Baremetal, Docker, ESX, Hyper-V, Xen
- Network: NSX, OpenDaylight
- Block Storage: Ceph
- Object Storage: Ceph
- Source builds via Omnibus





knife-openstack

knife openstack

```
$ knife openstack
```

```
Available openstack subcommands: (for details, knife SUB-  
COMMAND --help)
```

```
** OPENSTACK COMMANDS **
```

```
knife openstack flavor list (options)
```

```
knife openstack group list (options)
```

```
knife openstack image list (options)
```

```
knife openstack server create (options)
```

```
knife openstack server delete SERVER [SERVER] (options)
```

```
knife openstack server list (options)
```

knife openstack flavor list

```
$ knife openstack flavor list
```

ID	Name	Virtual CPUs	RAM	Disk
1	m1.tiny	1	512 MB	0 GB
2	m1.small	1	2048 MB	10 GB
3	m1.medium	2	4096 MB	10 GB
4	m1.large	4	8192 MB	10 GB
5	m1.xlarge	8	16384 MB	10 GB

knife openstack group list

```
$ knife openstack group list
```

Name	Protocol	From	To	CIDR	Description
default	tcp	22	22	0.0.0.0/0	default
default	icmp	-1	-1	0.0.0.0/0	default
haproxy	tcp	22002	22002	0.0.0.0/0	22022

knife openstack image list

```
$ knife openstack image list
```

ID	Name	Snapshot
03860dc3-f4b5-4ecf-bb13-804d6618cf15	canonical-ubuntu-10.04-amd64	no
663656ce-2fe4-4164-b842-214f221cff55	canonical-ubuntu-12.04-amd64	no
ad8a6e48-ea86-4afc-8aee-f427c02eb3ce	canonical-ubuntu-13.04-amd64	no
6efbafc0-fcb1-4623-9f7a-17125bba413a	centos-6.2	no
e0184596-577f-4eb0-9887-d70117c6b77b	debian-6.0.4-amd64	no

knife openstack server list

```
$ knife openstack server list
```

Instance ID	Name	Public IP	Private IP	Flavor	Image	Keypair	State
08f2d9f7-eeb0-45e7-8562-63aed8f096cc	os-45539345723309377	50.56.12.229		2	737969f8-6091-4896-ba9c-f3cf63bd25c5	rs-demo	active
43c6bbf5-b397-4986-8aec-392d955ce5b1	os-9924426691020416	50.56.12.232		2	737969f8-6091-4896-ba9c-f3cf63bd25c5	rs-demo	active
c1b9e3df-e566-4378-8a52-ed998b516608	os-553425714287088	50.56.12.230		2	737969f8-6091-4896-ba9c-f3cf63bd25c5	rs-demo	active
f3edc5da-ef99-4acb-a141-d957e09809e3	os-07459550287500682	50.56.12.231		2	737969f8-6091-4896-ba9c-f3cf63bd25c5	rs-demo	active

knife openstack server create

```
$ knife openstack server create -a -f 2 -I 737969f8-6091-4896-ba9c-f3cf63bd25c5 -S rs-demo -i ~/.ssh/rs-demo.pem -x ubuntu -r "role[base]"
```

```
Instance Name: os-45539345723309377
```

```
Instance ID: 08f2d9f7-eeb0-45e7-8562-63aed8f096cc
```

```
Waiting for server.....
```

```
Flavor: 2
```

```
Image: 737969f8-6091-4896-ba9c-f3cf63bd25c5
```

```
SSH Identity File: /Users/mray/.ssh/rs-demo.pem
```

```
SSH Keypair: rs-demo
```

```
Public IP Address: 10.241.0.12
```

```
Floating IP Address: 50.56.12.229
```

```
Waiting for sshd.....done
```

```
Bootstrapping Chef on 50.56.12.229
```

```
Instance Name: os-45539345723309377
```

```
Instance ID: 08f2d9f7-eeb0-45e7-8562-63aed8f096cc
```

```
Flavor: 2
```

```
Image: 737969f8-6091-4896-ba9c-f3cf63bd25c5
```

```
SSH Keypair: rs-demo
```

```
Public IP Address: 50.56.12.229
```

```
Environment: _default
```

```
Run List: role[base]
```

knife openstack server create

```
ubuntu@os-3526981092229722: ~ (ssh)
mray@morbo[17:28]+1.9.3(master)~
$ ssh -i ~/.ssh/local.pem ubuntu@10.0.111.129
Welcome to Ubuntu 12.04.1 LTS (GNU/Linux 3.2.0-34-generic x86_64)

* Documentation:  https://help.ubuntu.com/

System information as of Thu Dec  6 23:29:01 UTC 2012

System load:  4.68                Processes:            26
Usage of /:   53.4% of 1.35GB      Users logged in:     1
Memory usage: 41%                IP address for eth0: 192.168.100.7
Swap usage:   0%

Graph this data and manage this system at https://landscape.canonical.com/

0 packages can be updated.
0 updates are security updates.

Get cloud support with Ubuntu Advantage Cloud Guest
http://www.ubuntu.com/business/services/cloud
Last login: Thu Dec  6 23:27:25 2012 from morbo.atx.lab
ubuntu@os-3526981092229722:~$
```

knife openstack Compatibility

- Uses the OpenStack API
- Diablo, Essex, Folsom, Grizzly, Havana, trunk
- Cloudscaling
- Crowbar
- DreamHost
- IBM
- MetaCloud
- Nebula
- Piston
- Rackspace Private Cloud



knife openstack Resources

- `knife openstack --help`
- [docs.opscode.com/
plugin_knife_openstack.html](https://docs.opscode.com/plugin_knife_openstack.html)
- github.com/opscode/knife-openstack
- [tickets.opscode.com/browse/KNIFE/
component/](https://tickets.opscode.com/browse/KNIFE/component/)



knife openstack Roadmap

- Continuous Integration for Opscode-supported knife plugins soon
 - Testing against multiple deployments
- 0.9.0: json, API choices, alt networks
- 1.0.0: common knife-cloud base class
- 1.1.0: Network enhancements
- 1.2.0 guid cleanup, other niceties



Thanks!
Any questions?

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