

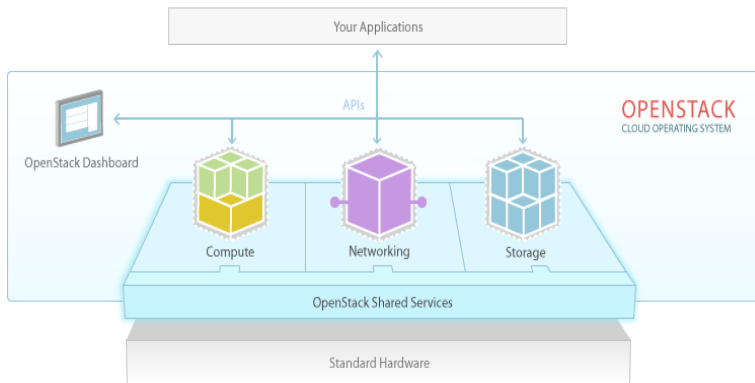
Design your private cloud with Red Hat OpenStack Platform

Red Hat Forum, Bangalore

September 23, 2016



What is OpenStack?



- Cloud operating system

What is Red Hat OpenStack Platform?

RED HAT® OPENSTACK® PLATFORM

- Infrastructure-as-a-Service
- Stable and trusted
- Always up to date

Figure 1: Devstack dashboard

Packstack

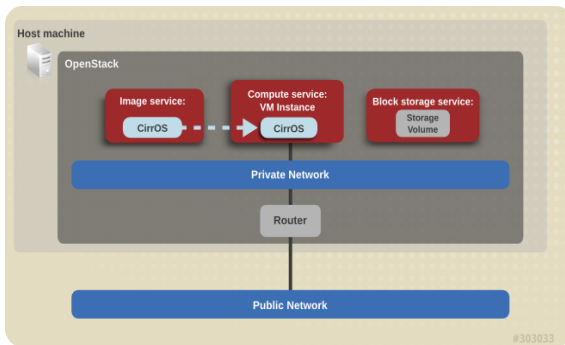


Figure 2: Packstack

- OpenStack Single node deployment
- Packstack networking overview

Director

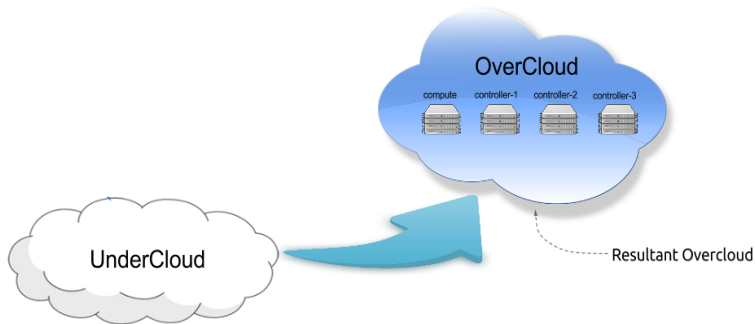


Figure 3: Director

- *Undercloud*: Main director node. Single system installation
- *Overcloud*: Resulting Red Hat OpenStack Platform

TripleO

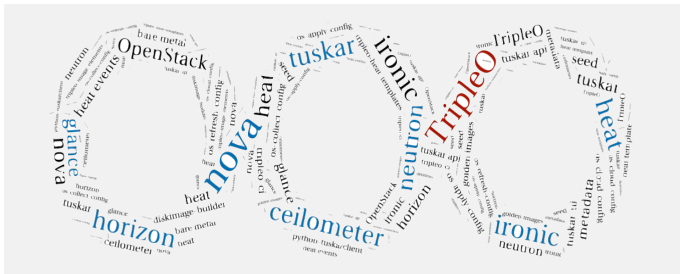


Figure 4: TripleO

What is **TripleO**?

- Friendly name for *OpenStack on OpenStack*
- Allows you to deploy production cloud on bare-metal hardware
- *Undercloud*: Subset of existing OpenStack components
- *Overcloud*: Production OpenStack cloud

TripleO

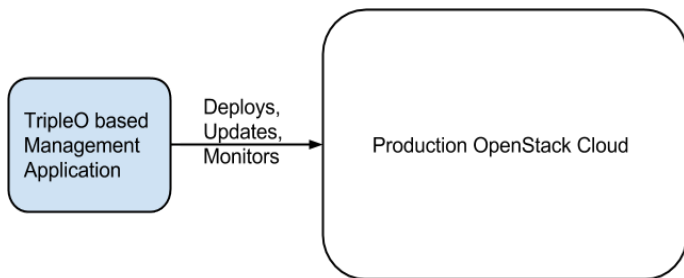
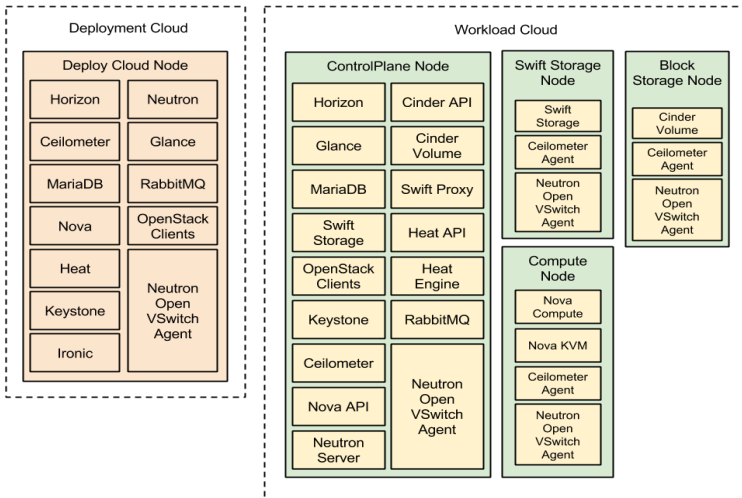


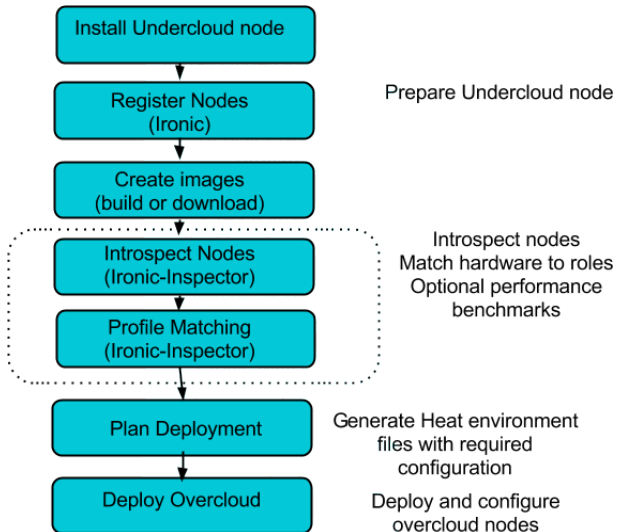
Figure 5: TripleO overview

We start by creating **Deployment cloud** (*undercloud*) that will deploy and manage **Workload cloud** (*overcloud*)

TripleO - Physical view



TripleO - Deployment workflow overview



Overcloud requirements

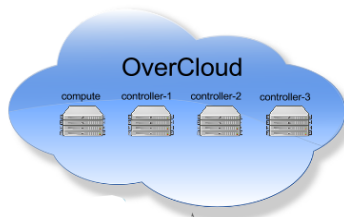
Compute

Type	Values
Processor	64-bit x86(Intel 64 or AMD64)
Memory	min 6 GB of RAM
Disk space	40 GB available
NICs	min 1 Gbps, at-least 2 in production
IPMI	IPMI functionality in motherboard

Controller

Type	Value
Processor	64-bit x86(Intel 64 or AMD64)
Memory	min 32 GB RAM, 64 GB recommended

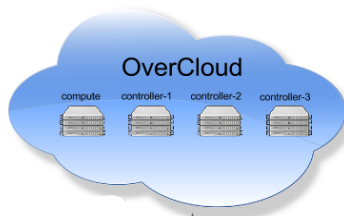
Planning your Overcloud



Node types

- Controller
- Compute
- Ceph-Storage
- Cinder-Storage
- Swift-Storage

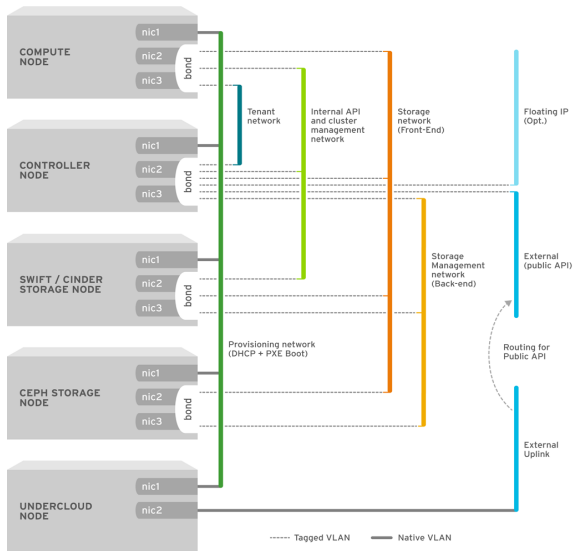
Planning your Overcloud



Overcloud	Controller	Compute	Ceph	Swift
Small	1	1	-	-
Medium	1	3	-	-
Medium with Object Storage	1	3	-	1
Medium(HA)	3	3	-	-
Medium(HA) with Ceph	3	3	3	-

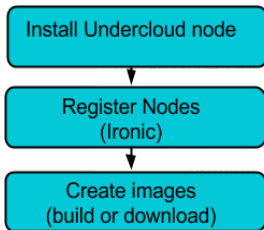
Ref: [Director Installation and Usage](#)

Planning networks



OPENSTACK_364029_0715

Register nodes



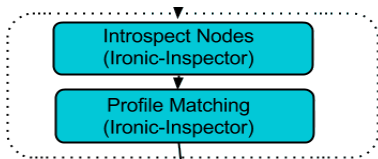
Prepare Undercloud node

Director requires node definition template(*JSON*) which contains hardware and power-management details for your nodes

Register nodes

```
1 $ openstack baremetal import json ~/instackenv.json
2 # Assign kernel and ramdisk
3 $ openstack baremetal configure boot
4 # List nodes
5 $ ironic node-list
```

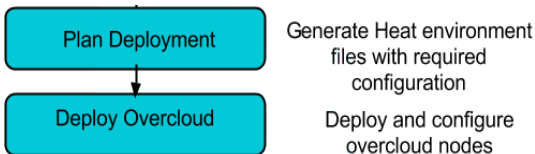
Introspect nodes



Introspect nodes
Match hardware to roles
Optional performance
benchmarks

Ironic inspector *collects hardware data from nodes to director*

Plan and deploy overcloud



Heat template

```
heat_template_version: 2013-05-23

description: > A very basic Heat template.

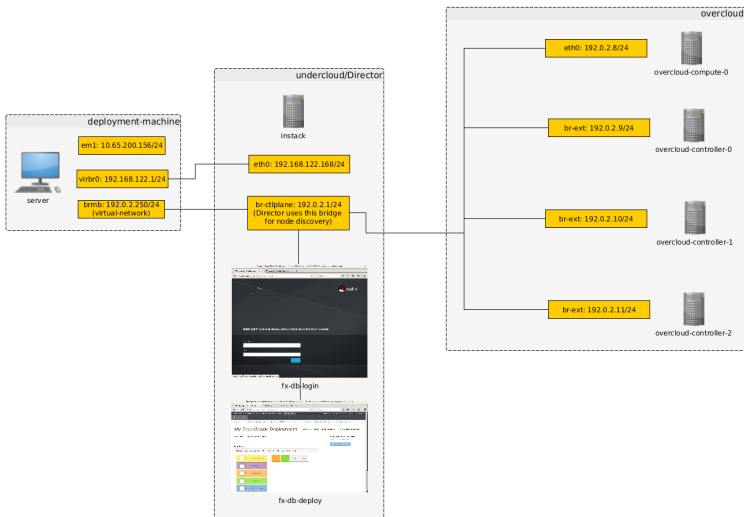
parameters:
  key_name:
    type: string
    default: lars
    description: Name of an existing key pair to use for the instance
  flavor:
    type: string
    description: Instance type for the instance to be created
    default: m1.small
  image:
    type: string
    default: cirros
    description: ID or name of the image to use for the instance

resources:
  my_instance:
    type: OS::Nova::Server
    properties:
      name: My Cirros Instance
      image: { get_param: image }
      flavor: { get_param: flavor }
      key_name: { get_param: key_name }

output:
  instance_name:
    description: Get the instance's name
    value: { get_attr: [ my_instance, name ] }
```

Ref: [Understanding heat templates](#)

Deploy overcloud



\$ openstack overcloud deploy

Reference

Links

- [red-hat-openstack-platform](#)
- [director-installation-and-usage](#)