



One-Click-Deployment of a Cloud Application Using Ansible

Rami Al-Ghanmi

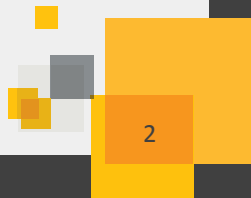
Symantec Corporation

@alghanmi, irc: raminoid

#scaleocd

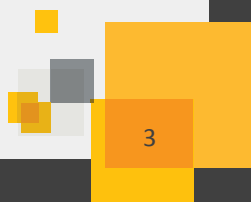
“ DevOps are awesome. We take the awesome in our head and give to people who don't have that awesome in their head

The DevOps Dude



“ DevOps are awesome. We take the awesome in our head and give to people who don't have that awesome in their head

James Fryman
Stackstorm



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Register

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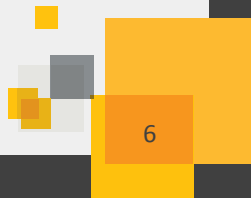
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USC Viterbi

School of Engineering





The Road to One Click



Symantec Cloud Platform Engineering

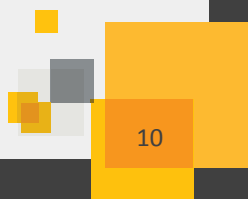


GET IN TOUCH

Cloud Technology's biggest threats appear benign. Individually, these files are unremarkable. But using Big Data platforms coded in Open Source and Open Stack, we can dig through hundreds of petabytes, identify the threats, and neutralize them.

Join the hunt with Symantec.

















Understand Your Infrastructure

Step 1



Where and How Are You Deploying

- Provisioning and sizing your tenants
- Access controls to these tenants
 - Inventory
 - VMs
 - Logs
- Access to Resources
 - Package & Code Repositories Managers
 - Build Servers
 - Public vs Private network

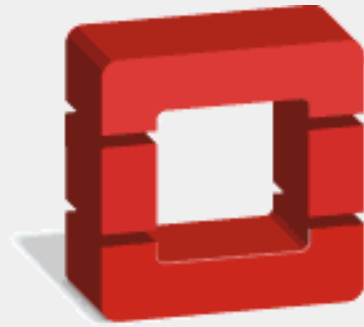


Intricacies of the Infrastructure

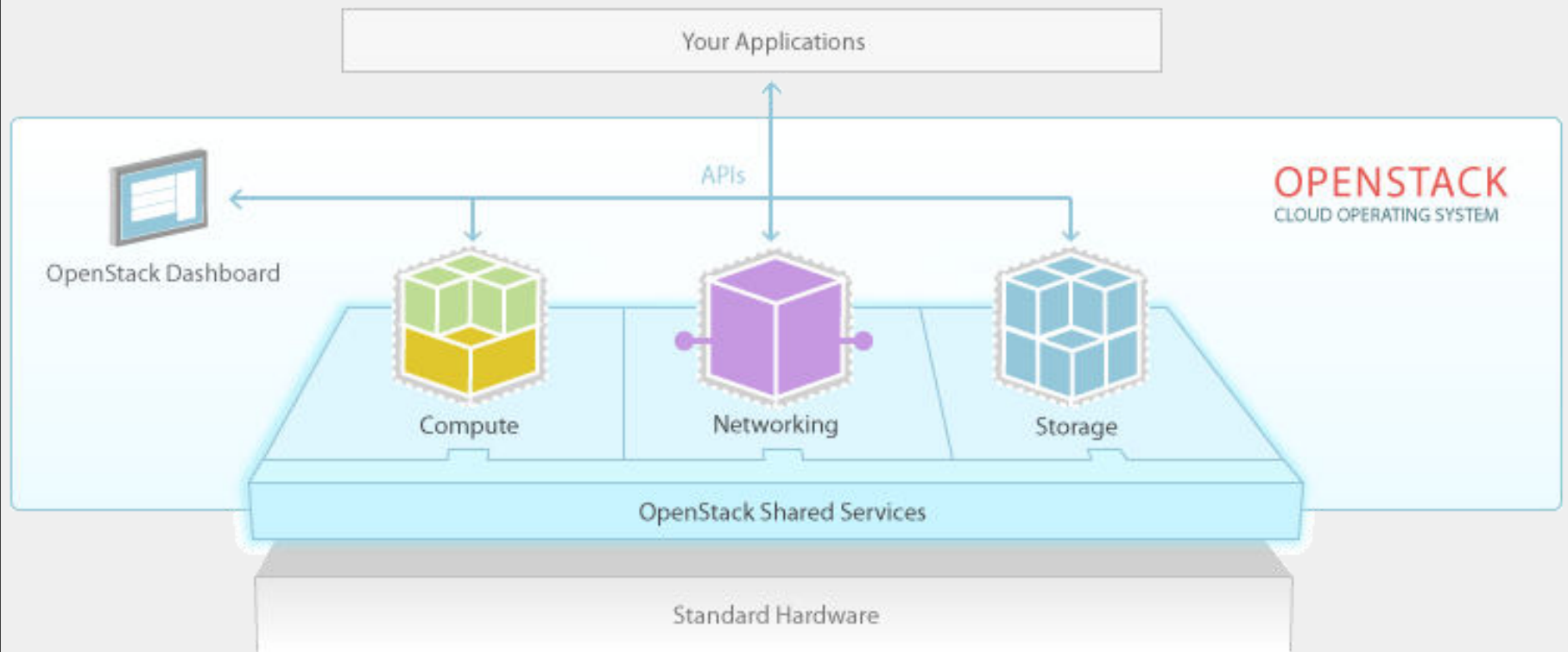
- Hardware or Software support for:
 - TLS Termination
 - DDoS and Traffic Monitoring
- Stateful or Stateless Firewalls and/or Security Groups
- Definition of an Availability Zone
- DNS Support for Private Networks
- TTLs for Load Balancers
- Support for micro-managing/controlling your infrastructure



IaaS – Open Stack



openstack™
CLOUD SOFTWARE

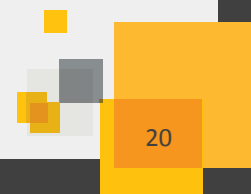


IaaS – Open Stack (Big Tent)

OpenStack® Services



www.rackspace.com 11



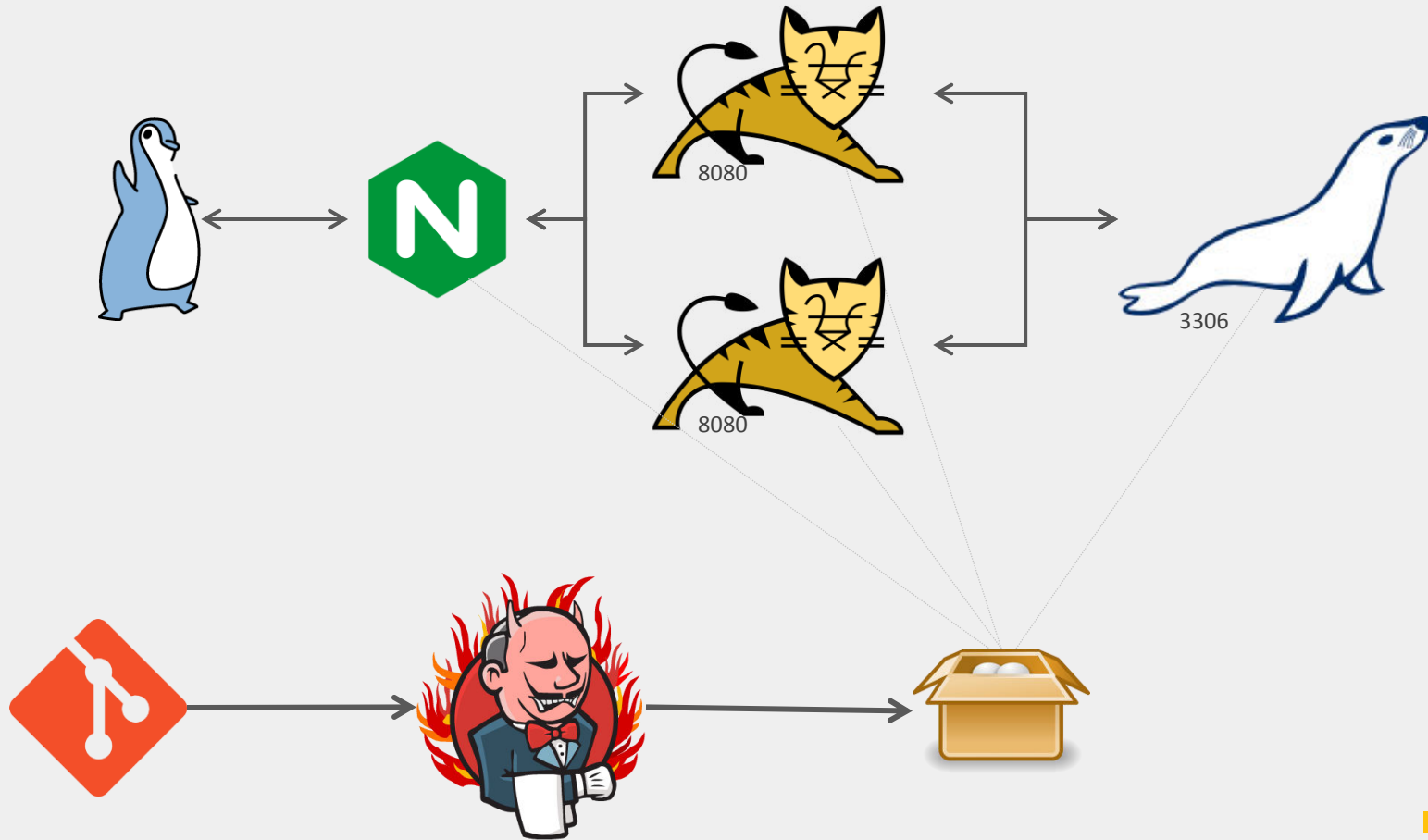


Understand Your Application

Step 2



Pet Clinic Example



Application Requirements

- CPU, RAM requirements
 - Document them
- Storage
 - Block
 - Object
- VM Ingress requirements
- Application Egress requirements
- Bootstrapping Requirements
 - DBs, Message Bus
 - Yum and Deb repositories





Know Where You Stand

Step 3





Configuration Management Requirements

- Pet vs Cattle
- Dealing with misbehaving nodes
 - Operational Failure
 - Configuration Failure
- Importance of machine state
- Correlation Dev/CI/QA/Stage/Prod environments
- Coders as Shippers?
- External Factors
 - Firewall Change Requests
 - Requisitioning New Hardware



Configuration Management Requirements

- All jobs runs must be idempotent

/,īdem'pōt(ə)nt,'ēdem,pōt(ə)nt/

- **Idempotent:** is the property of certain operations in mathematics and computer science, that can be applied multiple times without changing the result beyond the initial application.

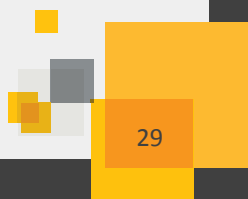




Know When to Shut Up

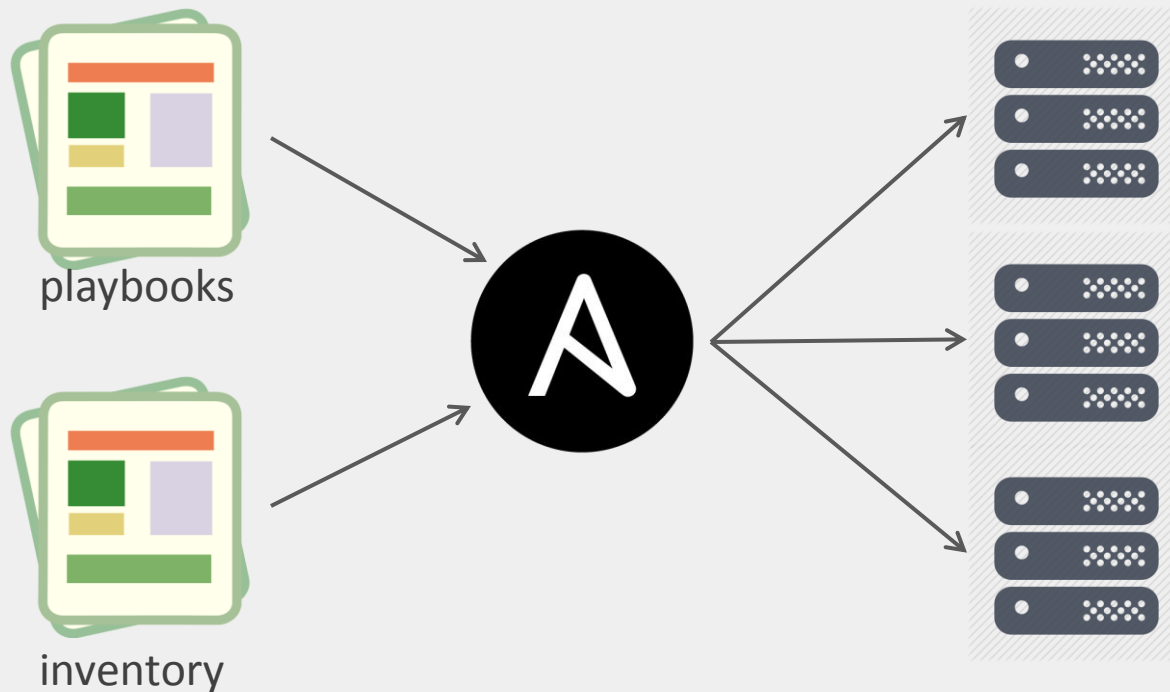
Lets Ansible





What Does Ansible Do?

- Cloud Provisioning
- IaaS Orchestration
- Configuration Management



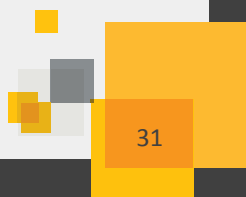
Install Ansible (and trimmings)

```
git clone git://github.com/ansible/ansible.git --recursive  
cd ./ansible  
source ./hacking/env-setup
```

```
sudo pip install paramiko PyYAML Jinja2 httplib2 six
```

```
sudo pip install shade python-novaclient \  
python-neutronclient python-keystoneclient \  
python-openstackclient
```

```
sudo apt-get install sshpass
```



Lets Checkout Some Code

- https://github.com/alghanmi/oed_talk



This is How we Start

Overview

Limit Summary



Instances
Used 0 of 20



VCPUs
Used 0 of 20



RAM
Used 0Bytes of 97.7GB



Floating IPs
Allocated 2 of No Limit



Security Groups
Used 1 of No Limit

Usage Summary

Select a period of time to query its usage:

From:

To:

Submit

The date should be in YYYY-mm-dd format.

Active Instances: 0 **Active RAM:** 0Bytes **This Period's VCPU-Hours:** 501.97 **This Period's GB-Hours:** 18369.26 **This Period's RAM-Hours:** 1833000.53

Usage

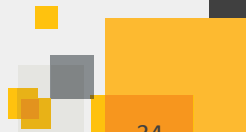
[Download CSV Summary](#)

Instance Name	VCPUs	Disk	RAM	Time since created
No items to display.				

Displaying 0 items

Lets Do Some Damage -- Networks

ansible-playbook construct.yml



Lets Do Some Damage -- Networks

ansible-playbook construct.yml

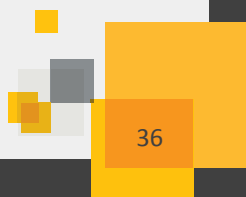
Networks

<input type="checkbox"/>	Name	Subnets Associated	Shared	Status	Admin State	Actions
<input type="checkbox"/>	jump_net	jump_net_subnet 192.168.60.0/24	No	Active	UP	Edit Network ▼
<input type="checkbox"/>	db_net	db_net_subnet 192.168.20.0/24	No	Active	UP	Edit Network ▼
<input type="checkbox"/>	app_net	app_net_subnet 192.168.10.0/24	No	Active	UP	Edit Network ▼
<input type="checkbox"/>	resource_net	resource_net_subnet 192.168.50.0/24	No	Active	UP	Edit Network ▼
<input type="checkbox"/>	snat-si-left_si_afaf2ec1-41b4-4bed-9e42-b833dddb9cc5	100.64.0.0/29	No	Active	UP	Edit Network ▼
<input type="checkbox"/>	fips-prod	100.81.64.0/20	Yes	Active	UP	
<input type="checkbox"/>	fips-dev	100.81.96.0/20	Yes	Active	UP	

Displaying 7 items

Lets Do Some Damage -- VMs

```
ansible-playbook -i openstack.py \  
    provision.yml
```



Lets Do Some Damage -- VMs

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```

Networks

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<input type="checkbox"/>	resource_net	resource_net_subnet 192.168.50.0/24	No	Active	UP	Edit Network ▼
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<input type="checkbox"/>	fips-prod	100.81.64.0/20	Yes	Active	UP	
<input type="checkbox"/>	fips-dev	100.81.96.0/20	Yes	Active	UP	

Displaying 7 items



Some Ansible Drawbacks

- Good support for non-homogeneous environments
- Standard Testing Platform
- We have been promised a Tower



Make Sure to Discuss

- Yummy YAML
- Hard idempotency requirements
- change != OK
- Packaging your application
- Packaging unpackaged dependencies





**KEEP
CALM**

**I KNOW
KUNG-FU**



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#scaleocd