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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The Road to One Click
Symantec Cloud Platform Engineering

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 Dashboard

APIs

Your Applications

OpenStack Shared Services

Standard Hardware

Compute

Networking

Storage
IaaS – Open Stack (Big Tent)
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
  /ˌɪdemˈpōt(ə)nt, ˈēdemˌpōt(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

Let's Ansible
What Does Ansible Do?

- Cloud Provisioning
- IaaS Orchestration
- Configuration Management

playbooks

inventory
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/ocd_talk](https://github.com/alghanmi/ocd_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: 2016-01-01 To: 2016-01-23

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

<table>
<thead>
<tr>
<th>Instance Name</th>
<th>VCPUs</th>
<th>Disk</th>
<th>RAM</th>
<th>Time since created</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
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No items to display.
Lets Do Some Damage -- Networks

ansible-playbook construct.yml
## Lets Do Some Damage -- Networks

### ansible-playbook construct.yml

### Networks

<table>
<thead>
<tr>
<th>Name</th>
<th>Subnets Associated</th>
<th>Shared</th>
<th>Status</th>
<th>Admin State</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>jump_net</td>
<td>jump_net_subnet</td>
<td>No</td>
<td>Active</td>
<td>UP</td>
<td>Edit Network</td>
</tr>
<tr>
<td>db_net</td>
<td>db_net_subnet</td>
<td>No</td>
<td>Active</td>
<td>UP</td>
<td>Edit Network</td>
</tr>
<tr>
<td>app_net</td>
<td>app_net_subnet</td>
<td>No</td>
<td>Active</td>
<td>UP</td>
<td>Edit Network</td>
</tr>
<tr>
<td>resource_net</td>
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<td>Active</td>
<td>UP</td>
<td>Edit Network</td>
</tr>
<tr>
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<td>100.64.0.0/29</td>
<td>No</td>
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<td>UP</td>
<td>Edit Network</td>
</tr>
<tr>
<td>fips-prod</td>
<td>100.81.64.0/20</td>
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<td>Active</td>
<td>UP</td>
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<td>fips-dev</td>
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<td>Active</td>
<td>UP</td>
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Lets Do Some Damage -- VMs

ansible-playbook --i openstack.py \ provision.yml
### Lets Do Some Damage -- VMs

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```

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<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>jump_net</td>
<td><code>jump_net_subnet 192.168.60.0/24</code></td>
<td>No</td>
<td>Active</td>
<td>UP</td>
<td>Edit Network</td>
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<tr>
<td>db_net</td>
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<tr>
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<td><code>app_net_subnet 192.168.10.0/24</code></td>
<td>No</td>
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<td>UP</td>
<td>Edit Network</td>
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<tr>
<td>resource_net</td>
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<td>Edit Network</td>
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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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