



Building Clouds

Using Orchestration and
Configuration Management

What do these buzz words mean?

Orchestration: Programmatically designing and automating the creation of systems within a cloud.

- Create servers
- Setup networking and security rule sets
- Setup and configure Load Balancers
- Create cloud databases and caching layers

Configuration Management: Programmatically designing and automating the configuration of systems within a cloud.

- Configure web services (install apache or patch PHP)
- Setup users and change passwords and login options
- Push application code to servers (CI/CD)

Types of Orchestration tools



Multi-Vendor Tools:

- Commercial abstraction layers like www.scalr.com
- Third party multi-cloud tools like www.terraform.io

Vendor Specific Tools:

- CloudFormation (AWS)
- Heat (OpenStack)

Example orchestration code:

AWS CloudFormation:

<http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/sample-templates-services-us-east-1.html>

OpenStack - Heat:

http://docs.openstack.org/developer/heat/template_guide/hot_guide.html

Terraform:

<https://github.com/hashicorp/terraform/tree/master/examples/>

Configuration Management



Many options as far as tools:

- Chef / Puppet
- Ansible / Salt

State versus Stateless configuration management (ie. client agents)

Examples of Configuration Management:

A decorative graphic in the top right corner consisting of several overlapping circles in various shades of gray, creating a layered, tunnel-like effect.


Puppet (ruby): <https://docs.puppet.com/puppet/>

Chef (ruby): <https://docs.chef.io/>

Ansible (python): <http://docs.ansible.com/>

Salt (python): <https://docs.saltstack.com/en/latest/>

The Roll you Own Option...



Depending on your scenario you may want to create your own custom solutions, and as always there is a tool to do it. Every infrastructure system has many SDK's to create your own orchestration solutions. Here is a list of just a few major python options:

- AWS - Boto3
- Google - Google Python SDK
- OpenStack - OpenStack Python SDK

** Keep in mind these are just Python examples, they have SDK's in most major flavors: Ruby, Java, C, etc. **

Demo Time

Orchestration:

- CloudFormations
- AWS Boto3 SDK
- Terraform on AWS



Questions ?