

OpenStack HEAT

deployment on steroids :-)

Muharem Hrnjadovic
@al_maisan

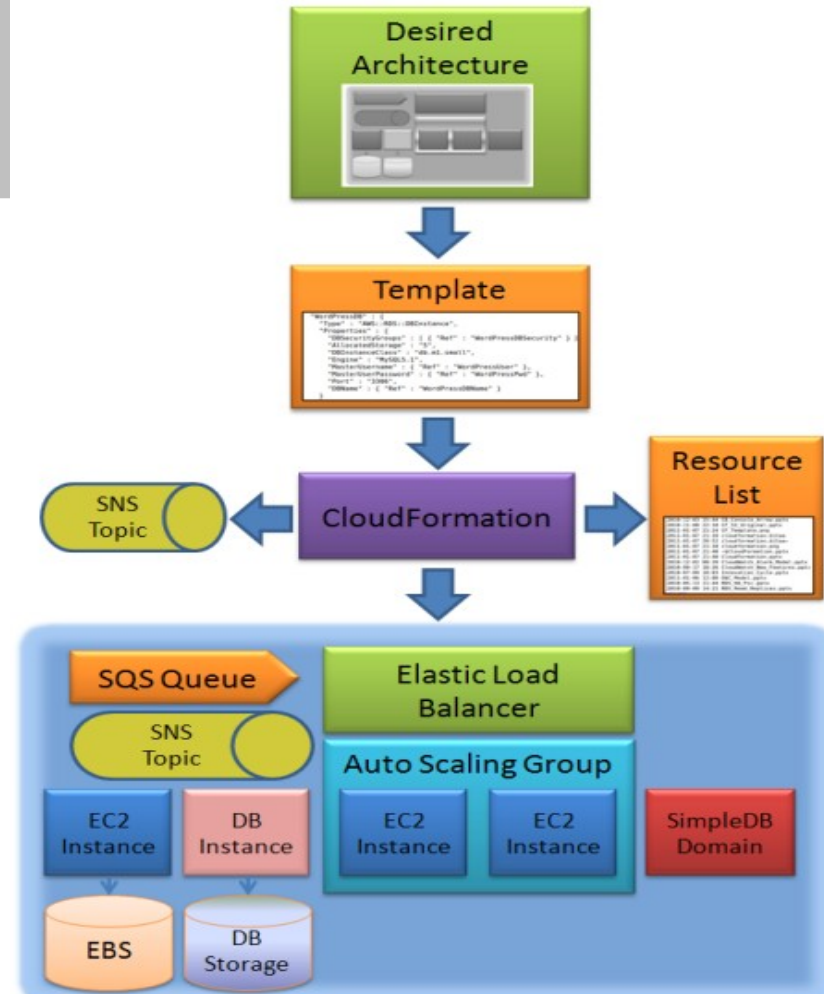
RACKSPACE.COM

What is HEAT

- “A template based orchestration engine for OpenStack”
- Implementation of **CloudFormation** on OpenStack
- Facilitates deployment of applications by specifying
 - Cloud resources
 - Relations between these
- Cool way to move workloads to OpenStack clouds :-)
<https://wiki.openstack.org/wiki/Heat>

Overview

- Templates rule!
- Advantages of devops practices
 - Revision control
 - Shared knowledge
- Puppet/chef can also be used
- Not all resources applicable to OpenStack yet



<http://aws.typepad.com/aws/2011/02/cloudformation-create-your-aws-stack-from-a-recipe.html>

The HEAT project

- Started approximately a year ago
- 4 core contributors (**)
- OpenStack project in incubation
- went through the first step of incubation review last week
- <https://wiki.openstack.org/wiki/Heat/Graduation>
- “we are at 90%”

The future ..

- At some point metering and monitoring data will come from **ceilometer**
- HEAT's **CloudWatch** service to “move” to ceilometer
- As OpenStack resources mature HEAT will harness these e.g. quantum/ELB

Installing HEAT

- Not packaged yet
- Installation from master is reasonably straight-forward
- HEAT goes onto the controller node
- **Ubuntu 12.04 instructions**
 - **Some gotchas & fixes**
 - Install **python-heatclient** on “devop box”

Anatomy of a template

```
{  
  
  "AWSTemplateFormatVersion" : "version date",  
  
  "Description" : "Valid JSON strings up to 4K",  
  
  "Parameters" : {  
    set of parameters  
  },  
  
  "Mappings" : {  
    set of mappings  
  },  
  
  "Resources" : {  
    set of resources  
  },  
  
  "Outputs" : {  
    set of outputs  
  }  
}
```

<http://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/template-structure.html>

CLI client

```
usage: heat [-d] [-v] [-k] [--cert-file CERT_FILE] [--key-file KEY_FILE]
           [--ca-file CA_FILE] [--timeout TIMEOUT]
           [--os-username OS_USERNAME] [--os-password OS_PASSWORD]
           [--os-tenant-id OS_TENANT_ID] [--os-tenant-name OS_TENANT_NAME]
           [--os-auth-url OS_AUTH_URL] [--os-region-name OS_REGION_NAME]
           [--os-auth-token OS_AUTH_TOKEN] [--heat-url HEAT_URL]
           [--heat-api-version HEAT_API_VERSION]
           [--os-service-type OS_SERVICE_TYPE]
           [--os-endpoint-type OS_ENDPOINT_TYPE] [-t]
           <subcommand> ...
```

Command-line interface to the Heat API.

Positional arguments:

<subcommand>	
event-list	List events for a stack
event-show	Describe the event
resource-list	Show list of resources belonging to a stack
resource-metadata	List resource metadata
resource-show	Describe the resource
stack-create	Create the stack
stack-delete	Delete the stack
stack-list	List the user's stacks
stack-show	Describe the stack
stack-update	Update the stack
template-show	Get the template for the specified stack
template-validate	Validate a template with parameters
help	Display help about this program or one of its subcommands.

lines 1-30

DEMO TIME



<http://www.the-editing-room.com/img/Drive-Angry-Flying-Car-Explosion-1024x679.jpg>