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Infrastructure as Code with AWS

Infrastructure as Code

“Enable the reconstruction of the business from nothing but a source code repository, an application data backup, and bare metal resources.”

- Adam Jacob, CTO at Chef -

Cloudformation

Amazon Web Service



Template



- JSON Syntax
- Versioning
- Runtime parameters
- Dependency

CloudFormation Engine



- Dependency
- AWS Resources
- Create/Update/delete
- Scriptable

Stack



- Deploy several times
- Multiregions
- Dev, Test, Prod

Cloudformation

Template example

```
1 {
2   "AWSTemplateFormatVersion" : "2010-09-09",
3   "Description" : "AWSUGTI Meeting #2 Example",
4
5   "Parameters" : { },
121 },
122
123   "Conditions" : { },
129 },
130
131   "Resources" : {
132
133     "WebServerGroup" : {
134       "Type" : "AWS::AutoScaling::AutoScalingGroup",
135       "Properties" : { },
174     },
175
176     "LaunchConfig" : { },
219 },
220
221     "WebServerInstanceSecurityGroup" : { },
266 },
267
268     "CPULAlarmHigh" : { },
285 },
286
287     "CPULAlarmNormal" : { },
304 },
305
306     "ScaleUpPolicy" : { },
314 },
315
316     "ScaleDownPolicy" : { },
324 }
325 |
326 },
327
328   "Outputs" : { },
333 }
334 }
```

Parameters

Conditions

Resource

Properties

Resources

Outputs

What about resources dependency ?

Cloudformation and Chef

--local-mode



```
72 ▼ "LaunchConfig" : {
73   "Type" : "AWS::AutoScaling::LaunchConfiguration",
74   "Metadata" : {
75     "AWS::CloudFormation::Init" : {
76       "configSets" : {
77         "bootstrap_instance" : ["cookbooks_setup", "run_chef"]
78       },
79       "cookbooks_setup" : {
125       },
126       "run_chef" : {
134       }
135     }
136   },
137   "Properties" : {
138     "ImageId" : { "Ref" : "AmiId" },
139     "KeyName" : "EU-Central-Posso-Test",
140     "SecurityGroups" : [ { "Ref" : "InstanceSecurityGroup" } ],
141     "InstanceType" : { "Ref" : "InstanceType" },
142     "AssociatePublicIpAddress" : "true",
143     "UserData" : { "Fn::Base64" : { "Fn::Join" : [ "", [
161     ] ] } }
162   }
163 },
```

Cfn-Init config sets

User data

What about AWS driver and resources for Chef ?

<https://github.com/chef/chef-provisioning-aws>

Cloudformation and Chef

--local-mode



```
72 ▼ "LaunchConfig" : {
73   "Type" : "AWS::AutoScaling::LaunchConfiguration",
74   "Metadata" : {
75     "AWS::CloudFormation::Init" : {
76       "configSets" : {
77         "bootstrap_instance" : ["cookbooks_setup", "run_chef"]
78       },
79       "cookbooks_setup" : {
125       },
126       "run_chef" : {
134       }
135     }
136   },
137   "Properties" : {
138     "ImageId" : { "Ref" : "AmiId" },
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140     "SecurityGroups" : [ { "Ref" : "InstanceSecurityGroup" } ],
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142     "AssociatePublicIpAddress" : "true",
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161     ] ] } }
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Cfn-Init config sets

User data

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Cloudformation and Ansible

Automation and Systems configuration



```
1 # Basic task example
2 - name: provision stack
3   hosts: localhost
4   connection: local
5   gather_facts: false
6
7   tasks:
8     - name: ansible-cloudformation
9       cloudformation:
10         stack_name: "awsugti-example-elb-tier"
11         state: "present"
12         region: "eu-west-1"
13         disable_rollback: true
14         template: "cloudformation/elb.json"
15         template_parameters:
16           Project: "REPS"
17           Environment: "DevTest"
18           Service: "Web"
19           Role: "fe"
20           VpcId: "vpc-a67e13c3"
21           Subnets: "subnet-593a7f2e,subnet-07396462"
22           WebServerPort: "80"
23           IngressCidrIP: "0.0.0/0"
24           HealthCheckUrl: "/ping.php"
25         tags:
26           Stack: "awsugti-example-elb-tier"
27     - name: show stack outputs
28       debug: msg="My stack outputs are {{stack.stack_outputs}}"
```



Questions ?

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<http://www.meetup.com/AWS-User-Group-Ticino/>



#awsti
@awsugticino