CloudCenter for Developers

Conor Murphy, Systems Engineer – Data Centre
Cisco Spark

Questions?
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Agenda

• CloudCenter Overview
• Building an App
• Lifecycle Management
• External Integrations
• Demo
CloudCenter Overview
Cisco DC Reference Architecture
CloudCenter Overview
Model Once. Deploy and Manage Anywhere

One Integrated Platform
Lifecycle Management
New and Existing Applications

Data Center
Private Cloud
Public Cloud

MODEL
DEPLOY
MANAGE

docker
Jenkins
ORACLE
splunk
IBM WebSphere
Bugzilla
Java
SUGARCRM
Cassandra
SAP
SharePoint
Dolibarr
CloudCenter
vSphere
openstack
Private
Cloud
Public
Cloud

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CloudCenter Overview

What Does “Model Once” Mean?

Infrastructure-Centric
Cloud-Specific workflows and Scripts
Labor /Services Intensive

Script-Based

Application Profile-Based

Application-Centric
Cloud-Agnostic
CloudCenter Overview

Components

Manager -> Profile -> Orchestrator

Orchestrator -> Secure
Orchestrator -> Scalable
Orchestrator -> Extendable
Orchestrator -> Multi-tenant
CloudCenter Overview

Integrations

Content Integration
- Docker
- Puppet, Chef
- Components
- User Content
- Vendor Content

Cloud APIs
- Datacenter Private and Public Cloud

Platform Integration
- ITSM | Build Automation (Jenkins)

Tool Integration
- Hooks
  - Scripts
  - Events
- Security
  - SSO
  - HSM
- Infrastructure
  - IPAM
  - DNS
Application Lifecycle

MODEL

DEPLOY

MANAGE
Building an App

Terminology

- **Application Profile**
  - Comprised of services

- **Services**
  - Define a function of the application (e.g. web, firewall, database, etc.)
  - Instantiated using packages
  - Customized using artifacts

- **Artifacts**
  - Consist of scripts, code snippets, applications

- **Repositories**
  - Contain the artifacts and can contain packages.
Building an App
Agents and External Services

Add a New Service

Select a Service Type

- **Virtual Machine**
  - with Agent
  - Agent & External Lifecycle Actions are available for setup

- **Virtual Machine**
  - without Agent
  - Only External Lifecycle Actions are available for setup

- **External Service**
  - no virtual machine launched
  - Only External Lifecycle Actions are available for setup
# Building an App

## Agents and External Services

### Agent Lifecycle Actions

<table>
<thead>
<tr>
<th>Action</th>
<th>Script from bundle</th>
<th>External Actions Bundle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install</td>
<td>service install</td>
<td></td>
</tr>
<tr>
<td>Configure</td>
<td>service configure</td>
<td></td>
</tr>
<tr>
<td>Deploy</td>
<td>service deploy</td>
<td></td>
</tr>
<tr>
<td>Start</td>
<td>service start</td>
<td></td>
</tr>
<tr>
<td>Stop</td>
<td>service stop</td>
<td></td>
</tr>
<tr>
<td>Restart</td>
<td>service restart</td>
<td></td>
</tr>
<tr>
<td>Reload</td>
<td>service reload</td>
<td></td>
</tr>
<tr>
<td>Upgrade</td>
<td>service upgrade</td>
<td></td>
</tr>
<tr>
<td>Clean Up</td>
<td>service cleanup</td>
<td></td>
</tr>
</tbody>
</table>

### External Lifecycle Actions

<table>
<thead>
<tr>
<th>Action</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre VM Start</td>
<td>Select a Location</td>
</tr>
<tr>
<td>Pre VM Init</td>
<td>Select a Location</td>
</tr>
<tr>
<td>Post VM Init</td>
<td>Select a Location</td>
</tr>
<tr>
<td>Pre VM Stop</td>
<td>Select a Location</td>
</tr>
<tr>
<td>Post VM Stop</td>
<td>Select a Location</td>
</tr>
</tbody>
</table>
#!/bin/bash 

SVC_HOME=/usr/local/osmosix/service 

.O/SVC_HOME/etc/.osmosix.sh

/osmosix/etc/userenv

$SVC_HOME/utills/cfgutil.sh

$SVC_HOME/utills/install_util.sh

$SVC_HOME/utills/os_info_util.sh

sed -i '/jdbc.url/c\jdbc.url=jdbc:mysql://"$CliqrTier_Database_PUBLIC_IP"/petclinic' /usr/local/tomcat6/webapps/ROOT/WEB-INF/classes/jdbc
<table>
<thead>
<tr>
<th>Line</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>#!/bin/bash -x</td>
</tr>
<tr>
<td>2</td>
<td>exec &gt; &gt;(tee -a /var/tmp/wp-bkpup.sh) 2&gt;&amp;1</td>
</tr>
<tr>
<td>3</td>
<td>. /var/local/osmosis/etc/osmosis.sh</td>
</tr>
<tr>
<td>4</td>
<td>. /var/local/osmosis/etc/userenv</td>
</tr>
<tr>
<td>5</td>
<td>. /var/local/osmosis/service/utils/cfgutil.sh</td>
</tr>
<tr>
<td>6</td>
<td>cd -</td>
</tr>
<tr>
<td>7</td>
<td>echo &quot;Username: $(whoami)&quot;</td>
</tr>
<tr>
<td>8</td>
<td>echo &quot;Working Directory: $(pwd)&quot;</td>
</tr>
<tr>
<td>9</td>
<td>env</td>
</tr>
<tr>
<td>10</td>
<td>#Install S3</td>
</tr>
<tr>
<td>12</td>
<td>sudo unzip -o awscli-bundle.zip</td>
</tr>
<tr>
<td>13</td>
<td>sudo ./awscli-bundle/install -b /root/bin/aws</td>
</tr>
<tr>
<td>14</td>
<td>#Configure S3</td>
</tr>
<tr>
<td>15</td>
<td>sudo mkdir -p /root/.aws</td>
</tr>
<tr>
<td>16</td>
<td>echo &quot;[default]&quot;</td>
</tr>
<tr>
<td>17</td>
<td>echo &quot;region=us-west-1&quot;</td>
</tr>
<tr>
<td>18</td>
<td>echo &quot;output=json&quot;</td>
</tr>
<tr>
<td>19</td>
<td>echo &quot;[default]&quot;</td>
</tr>
<tr>
<td>20</td>
<td>echo &quot;aws_access_key_id=AWS_access_key_id&quot;</td>
</tr>
<tr>
<td>21</td>
<td>echo &quot;aws_secret_access_key=AWS_secret_access_key&quot;</td>
</tr>
<tr>
<td>22</td>
<td>cd /var/www/wordpress</td>
</tr>
<tr>
<td>23</td>
<td>sudo zip -r --wordpressbkup.zip *</td>
</tr>
<tr>
<td>24</td>
<td>sudo /root/bin/aws s3 cp --wordpressbkup.zip s3://$3/clipDeploymentId/wordpressbkup.zip</td>
</tr>
<tr>
<td>25</td>
<td>sudo rm --wordpressbkup.zip</td>
</tr>
</tbody>
</table>
Application Lifecycle

MODEL

DEPLOY

MANAGE
Application Lifecycle
Deploy Environments and Governance
Application Lifecycle

MODEL

DEPLOY

MANAGE
Lifecycle Management
Action Library

- Start, Stop, Reboot, Terminate
- Promote, Migrate, Upgrade
- Install/Upgrade CloudCenter Agent
- Scale Out—Add VM or memory
- Attach Storage
- Backup Data
- …
Lifecycle Management
Custom Defined Actions

Actions Library

<table>
<thead>
<tr>
<th>NAME/TYPE</th>
<th>LAST UPDATED</th>
<th>DESCRIPTION</th>
<th>WHERE USED</th>
<th>ENABLE</th>
<th>ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invoke CCM Fetch API</td>
<td>11 May 2017 08:34 PM</td>
<td>Invoices Web Service</td>
<td>Deployments</td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>Push My Key</td>
<td>11 May 2017 03:20 PM</td>
<td>Command or Script</td>
<td>Virtual Machines</td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>Jenkins Install</td>
<td>11 May 2017 01:51 PM</td>
<td>Chef</td>
<td>Virtual Machines</td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>Puppet File Creation</td>
<td>11 May 2017 09:53 AM</td>
<td>Puppet</td>
<td>Virtual Machines</td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>Elastic IP Attachment</td>
<td>11 May 2017 09:27 AM</td>
<td>Command or Script</td>
<td>Virtual Machines</td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>11 May 2017 09:24 AM</td>
<td>Command or Script</td>
<td>Virtual Machines</td>
<td>ON</td>
<td></td>
</tr>
</tbody>
</table>
External Integrations
Example Pipeline

APP
Env = Dev
External Integrations

Example Pipeline

- **VAGRANT**
  - Environment Setup

- APP
- Env = Dev

- Cisco CloudCenter
  - DEPLOY
  - MANAGE

- APP
- APP
External Integrations

Example Pipeline

1. VAGRANT
   Environment Setup

2. Config Management

3. Cisco CloudCenter

4. APP
   Env = Dev

5. APP

6. APP
External Integrations

Example Pipeline

VAGRANT
Environment Setup

GitHub
Source Repository

Cisco CloudCenter

Config Management

APP
Env = Dev

APP
APP

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External Integrations
Example Pipeline

1. **VAGRANT**
   - Environment Setup

2. **GitHub**
   - Source Repository

3. **Jenkins**
   - Build Automation

4. **Cisco CloudCenter**
   - Model
   - Deploy
   - Manage

5. **Config Management**

6. **APP**
   - Env = Dev
   - Env = Test

7. **APP**
   - Env = Test
External Integrations

Example Pipeline

[Diagram showing the process of building and deploying applications using Vagrant, GitHub, Jenkins, and Cisco CloudCenter.]
External Integrations

Example Pipeline
External Integrations
Example Pipeline
Demo
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