EUROPE
OPEN NETWORKING //
Enabling Collaborative Development & Innovation
ONAP Test Automation

Optimization of E2E Testing the ONAP Framework by adding CI/CD Pipelines
Agenda

• DT ONAP Labs Overview
• ONAP Installation and Testing, Problems to solve
• Solution using Orange Opensource Framework
• Demo
Agenda

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DT Datacenter Structure

Datacenter 1 (Dell)
- VNF Project
- VNF Project
- ONAP Project
- ONAP Project

Datacenter 2 (HP)
- VNF Project
- VNF Project
- ONAP Project
- ONAP Project

Common Management
(Common Services, Access, Cloud Management, HW Management, DC Integration)

VIM (Suse Openstack Cloud, DC1)

VIM (Suse Openstack Cloud, DC2)

XRS

Internet
External Transport

HEAT API
ONAP Projects

ONAP@DT Datacenter (DC1)

Tenant: onap-<project>
- K8S VM
- Rancher VM
- t1-jump

Tenant: xxx-<project>
- <project> VM
- t2-jump

Internet

secway

OpenStack (API)

CI/CD Environment

ONAP@DT Datacenter

- cm-docker01
  - GitLab
  - GitLabRunner
  - Nexus
  - ...

- ansible

Openstack Cluster
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ONAP Installation and Testing

- Existing Gitlab CI based installation of ONAP
  - using ONAP Integration Project tools
  - Requires manual creation of Tenant, User,...

- Existing Gitlab CI based testing of ONAP
  - using Orange project “onap_tests”

- Hard wired CI chains
Problems to solve

- Using Orange Chained CI toolset
- Automated creation of tenant, user, infrastructure
- Separate Infra, K8S, ONAP, Testing and stick together for different usecases
- Support for easy creation of new pipelines for new projects
- One-Click (re-)deployment
- Scheduled ONAP installations and testing
Final Deployment Result

ONAP@DT Datacenter (DC1)

Openstack Cluster

Tenant: onap-<project>
- K8S VM 1
  - internal_ONAP (10.0.0.x/24)
- onap-<project>-mgmt (10.0.x/24)
  - onap-jumphost

Tenant: vnf-<project>
- <project> VM
  - internal
  - external
  - management
- xxx-<project>-mgmt (10.0.y/24)
  - t2-jump

internet-nat-dl

11a 11b 11c 12a 12b

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Orange Opensource CI Framework

- Orange framework in GitLab.com (https://gitlab.com/Orange-OpenSource/lfn)
CI/CD with GitLab

- **.gitlab-ci.yaml**
  - CI-task definitions
  - CI-pipeline definition

- **Gitlab Runner**
  - runs pipeline/tasks in containers
  - is registered in Gitlab project

- **CI-pipeline launched via**
  - File checkin
  - Manual start
  - external/external trigger

- **Parameter input**
  - via manual startup
  - via URL

- **Artifact output**
  - per pipeline/task
CI Chaining

Project A
Pipeline A

Project B
Pipeline B

Project B
Pipeline C

GITLAB

Chain-Master

GITLAB-RUNNER

Pipeline M

Start

Param

Trigger

Trigger

Trigger
<table>
<thead>
<tr>
<th>CI-Chain Projects</th>
<th>Project 0 (chained-ci)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0. Central Chain Master</td>
<td>Project A (cloud-infra)</td>
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<tr>
<td>1. Infrastructure Deployment in Openstack Cloud</td>
<td>Project B (rke-install)</td>
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<td>1. OS-Tenant</td>
<td>Project C</td>
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<td>2. OS-Network</td>
<td>Project D (onap-oom-install)</td>
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<td>3. OS-Servers</td>
<td>Project E (onap-testing)</td>
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<tr>
<td>2. Virtualisation Platform on Infrastructure</td>
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<tr>
<td>1. e.g. K8S, RKE,...</td>
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<td>3. Virtualisation Platform Testing</td>
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<td>4. Application Installation on Virtualisation Platform</td>
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<tr>
<td>1. e.g. ONAP on RKE</td>
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<tr>
<td>5. Application Testing</td>
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</table>
ONAP Infrastructure Installation Chain

chained-ci - Pipeline: onap-master-k8s10-daily-dell

cloud-infra
- clean
- user
- project
- sec/net
- server
- sconfig

rke-install
- prep
- conf
- depl
- post
- monitor

create

install k8s/rke

ONAP-Tenant
- k8s-vm

Openstack

trigger „in_pod“ pipeline

fetch artifact

fetch artifact
ONAP Application Installation Chain

chained-ci - Pipeline: onap-master-daily-dell

- config
- infra_install
- app_install
- app_test

fetch artifact

trigger

cloud-infra

fetch artifact

create

create

install

VNF-Tenant

ONAP-Tenant

Openstack

fetch artifact

test

onap

fetch artifact

pdf/idf, vim

fetch artifact

onap-oom-install

onap-testing

fetch artifact

fetch artifact

pdf/idf, vim

chained-ci - Pipeline: onap_master_k8s10_daily_dell

onap

k8s-vm

k8s-vm

k8s-vm

k8s-vm
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