Advanced Deployment with Open Shift – Homework

This is a document to provide the necessary information about running the script, which is used to deploy the Open Shift cluster and complete the CICD pipeline, which is needed to successfully complete the homework assignment. This document and its script is expecting use of the Service "OpenShift HA Homework Lab" or the Service "OpenShift HA Lab" from labs.opentlc.com. labs.opentlc.com uses a id variable GUID that is unique for every ordered service. The rest of this document the string “$GUID” refers to that unique id.

Git repository with the homework scripts: https://github.com/knutia/os_adv_depl_hw

To use the repository to install and set up OpenShift cluster order Service "OpenShift HA Homework Lab" or Service "OpenShift HA Lab" from labs.opentlc.com and after logging on to the bastion whit the information received from labs.opentlc.com execute the following steps:

Step	Description	Command
1	Go to root	sudo -i
2	Clone the git repository	git clone https://github.com/knutia/os_adv_depl_hw.git
3	Change directory	cd ./os_adv_depl_hw
4	Run the install script	sh ./install.sh
5	Uninstall the cluster (optional)	sh ./uninstall.sh

Basic Requirements.

The ./install.sh script automatically deploys the OpenShift cluster, creates PVs with different sizes (5G and 10G) and creates the different users requested in the assignment. The users can authenticate on the master console “https://loadbalancer.$GUID.example.opentlc.com”.

Registry is installed on url “https://registry-console-default.apps.$GUID.example.opentlc.com”and the Router is running on each of the 3 infra nodes.

This are the users created and there rolls and password:

User role	Login credentials
Cluster-admin	admin/r3dh4t1!
User	andrew/r3dh4t1!
User	amy/r3dh4t1!
User	brian/r3dh4t1!
User	betty/r3dh4t1!

HA Deployment.

OpenShift cluster have three masters and is load balancer by the node loadbalancer.$GUID.example.opentlc.com. It is also the load balancer/DNS for *.apps.$GUID.example.opentlc.com. There is also two infra nodes where pods like metric, logging and registry is hosted so there is dedicated nodes for the common components across user projects and separated dedicated nods for hosting user projects pods.

Environment Configuration section.

The internal network is configured to isolate each isolate projects by default. It aggregate logs from running pods and nodes to a common logging service running on the infra nodes. There is also a common metrics collector also running on the infra nodes that collects metrics from all running pods. The Service Catalog, Template Service Broker, and Ansible Service Broker is also installed and available for use. Router and Registry Pods are also running on the Infra nodes.

CICD Workflow.

The CICD pipeline is created in the task-build project and it is promoted to the task-dev, task-test and task-prod project automatically through the pipeline. A human being does not promote the pipeline as the resources and auto scale enabling on the dc/tasks task-prod project done by the install script then will fail. If you want a human being to approve promote, uncomment the comments in the Jenkins file for the pipeline in the task-build project.

The following table represents the Service associated whit the CICD pipeline and its Login credentials:

Service	**Login credentials**
Nexus	admin/admin123
SonarQube	admin/admin
Gogs Git Server	gogs/gogs

Multitenancy section.

A list of created users are listed in the table under chapter “Basic Requirements”. These users are members of the following groups:

Group name	**Members**
alphacorp	Amy and Andrew
betacorp	Brian and Betty

There is also created three projects, Alphacorp, Betacorp and Common. The group alphacorp is member of project Alphacorp. The group betacorp is member of project Betacorp. project Common have no members and is to accommodate future needs.

There is dedicated nodes for each project. Node1.$GUID.example.opentlc.com is dedicated to Alphacorp, Node2.$GUID.example.opentlc.com is dedicated to Betacorp and Node3.$GUID.example.opentlc.com is dedicated to Common.

Information to examination sensor.

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