

ProLUG 101

Unit 10 Worksheet

Instructions

Fill out this sheet as you progress through the lab and discussions. Hold onto all of your work to send to me at the end of the course.

Discussion Questions:

Unit 10 Discussion Post 1: Read this document: <https://kubernetes.io/docs/concepts/overview/>

1. What are the two most compelling reasons you see to implement Kubernetes in your organization?
2. When the article says Kubernetes is not a PaaS? What do they mean by that? What is a PaaS in comparison?

Unit 10 Discussion Post 2: You get a ticket about your new test cluster. The team is unable to deploy some of their applications. They suspect there is a problem and send you over this output:

```
[root@Test_Cluster1 ~]# kubectl version
Client Version: v1.31.6+k3s3
Kustomize Version: v5.0.4-0.20230601165947-6ce0bf390ce3
Server Version: v1.30.6+k3s1

[root@rocky15 ~]# kubectl get nodes
```

NAME	STATUS	ROLES	AGE	VERSION
Test_Cluster1	Ready	control-plane,master	17h	v1.30.6+k3s1
Test_Cluster2	NotReady	worker	33m	v1.29.6+k3s1
Test_Cluster3	Ready	worker	17h	v1.28.6+k3s1

1. What are you checking on the cluster to validate you see their error?
2. What do you think the problem could be?
3. Do you think someone else has tried anything to fix this problem before you? Why or why not?

Unit 10 Discussion Post 3: You are the network operations center (NOC) lead. Your team has recently started supporting the dev, test, and QA environments for your company's K8s cluster. Write up a basic checkout procedure for your new NOC personnel to verify operation of the cluster before escalating on critical alerts.

1. What information online helped you figure this out? What blogs or tools did you use?
2. What did you learn in this process of writing this up?

Definitions/Terminology

Kubernetes/K8s

K3s

Controller Manager

ETCD

Kubelet

Kube-proxy

Controlplane

Node

Static Pod

Scheduler

API Server

Notes During Lecture/Class:

Links:

Terms:

Useful tools:

Lab and Assignment

Unit 10 Lab k3s

Continue working on your project from the Project Guide

Topics:

1. System Stability
2. System Performance
3. System Security
4. System monitoring
5. Kubernetes
6. Programming/Automation

You will research, design, deploy, and document a system that improves your administration of Linux systems in some way.

Digging Deeper

1. Work more in the lab to build a container of your choice and then find out how to deploy that into your cluster in a secure, scalable way.
2. Read this about securing containers: <https://docs.docker.com/build/building/best-practices/>
 - a. Do this to practice securing those containers. <https://killercoda.com/killer-shell-cks/scenario/static-manual-analysis-docker>
3. Read these about securing Kubernetes Deployments: <https://kubernetes.io/docs/concepts/security/> and <https://kubernetes.io/docs/concepts/security/pod-security-standards/>
 - a. Do this lab to practice securing Kubernetes: <https://killercoda.com/killer-shell-cks/scenario/static-manual-analysis-k8s>

Reflection Questions

1. What questions do you still have about this week?
2. How can you apply this now in your current role in IT? If you're not in IT, how can you look to put something like this into your resume or portfolio?

