Kubernetes Troubleshooting Workshop

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,

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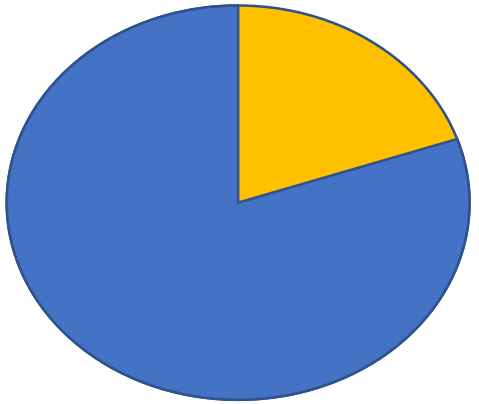
$ who am i

$ who are you ?

Tell me, are you –

- A complete noob to k8s?
- You know the kubectl basics
  - how to deploy Deployments, Services
- You administer or develop Kubernetes at work
  - You're a CKA/CKAD?



$ find ~/ -name ‘WHAT?.md’

Troubleshooting - Groups

I propose to work in groups

- ideally of mixed Kubernetes experience so you learn together
- to limit the resources I need to create

Troubleshooting - Cluster

In this workshop you will each be given access to one of several VMs running in AWS EC2.

We are many people so each group will a share VM and use KIND « Kubernetes in Docker » to create a « 2 node » Kubernetes Cluster
https://kind.sigs.k8s.io/
https://github.com/kubernetes-sigs/kind

KIND allows us to create a lightweight cluster, with some limitations

Troubleshooting – BYOC ?

If you have access to a remote machine on which you want to run the workshop then you are welcome.

- The lab can be done on any cluster where you have full admin rights
- Don’t do this on a production cluster, though all scenarii should only affect the namespace ‘k8scenario’

You can also run this workshop from home after this session.

PLEASE DON’T USE A CLUSTER ON YOUR LAPTOP during this workshop, you will kill the network connection for everybody

Troubleshooting – BYOC ?

If you have access to a remote machine running OpenShift with full admin rights I’d love to know what works or not with this tool

PRs are welcome !

Troubleshooting – k8scenario

There is an open source project, ‘k8scenario’ – a tool written in Go which will automatically install the selected scenario

https://k8scenario.github.io/

PRs, issues (ideas) for the tool are actively encouraged !!

- https://github.com/k8scenario/k8scenario

- or PRs, issues for the documentation https://github.com/k8scenario/k8scenario.github.io

Troubleshooting – k8scenario (priv)

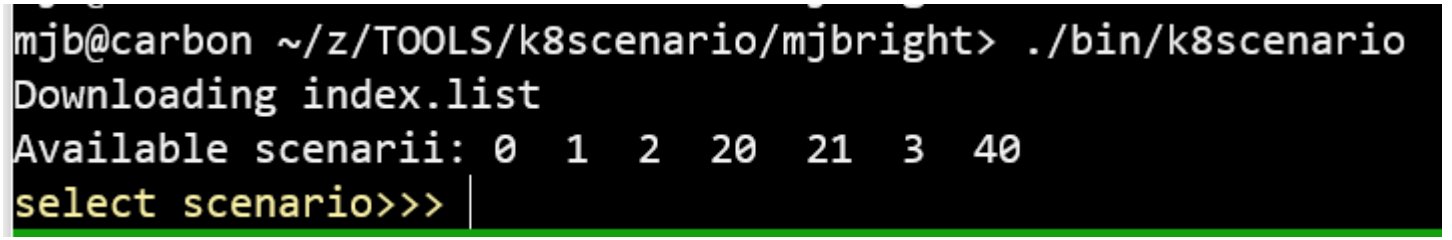
Nevertheless we will be using a ‘closed source’ version of k8scenario which has some extra features, scenarii which I use in paid trainings

If you only want to use the ‘open source’ version then you’re welcome to do that

Troubleshooting – k8scenario

You will be presented with a basic menu

- select a scenario



Troubleshooting – k8scenario

Each scenario will be installed into the ‘k8scenario’ namespace

The namespace is deleted/recreated at the start of each scenario
So you need those cluster rights

```
mjb@carbon ~/z/TOOLS/k8scenario/mjbright> ./bin/k8scenario
Downloading index.list
Available scenarii: 0  1  2  20  21  3  40
select scenario>>> 0
PRIVATE Version: k8scenario.private/2020-Jan-22_19h06m34

---- [scenario0] Installing into namespace k8scenario
Deleting existing: namespace/k8scenario
```

Troubleshooting – k8scenario

```
mjb@carbon ~/z/TOOLS/k8scenario/mjbright> ./bin/k8scenario
Downloading index.list
Available scenarii: 0  1  2  20  21  3  40
select scenario>>> 0
PRIVATE Version: k8scenario.private/2020-Jan-22_19h06m34

---- [scenario0] Installing into namespace k8scenario
Deleting existing: namespace/k8scenario
(Re)creating namespace: k8scenario

# Task Instructions: Create a Pod in namespace 'k8scenario' whose name starts with 'basictest'

Note: There are 2 ways to do this
    - Explicitly create a Pod using 'kubectl run' with the appropriate name
or
    - Create a Deployment using 'kubectl create' with the appropriate name,
      it's Pods will also have a name derived from the Deployment name

[scenario0]/1 - task incomplete - Sleep 5s ... - exit status: 1
[scenario0]/2 - task incomplete - Sleep 5s ...
```

Troubleshooting – k8scenario

```
mjb@carbon ~/z/TOOLS/k8scenario/mjbright> kubens k8scenario
Context "kind-kind" modified.
Active namespace is "k8scenario".
mjb@carbon ~/z/TOOLS/k8scenario/mjbright>
```

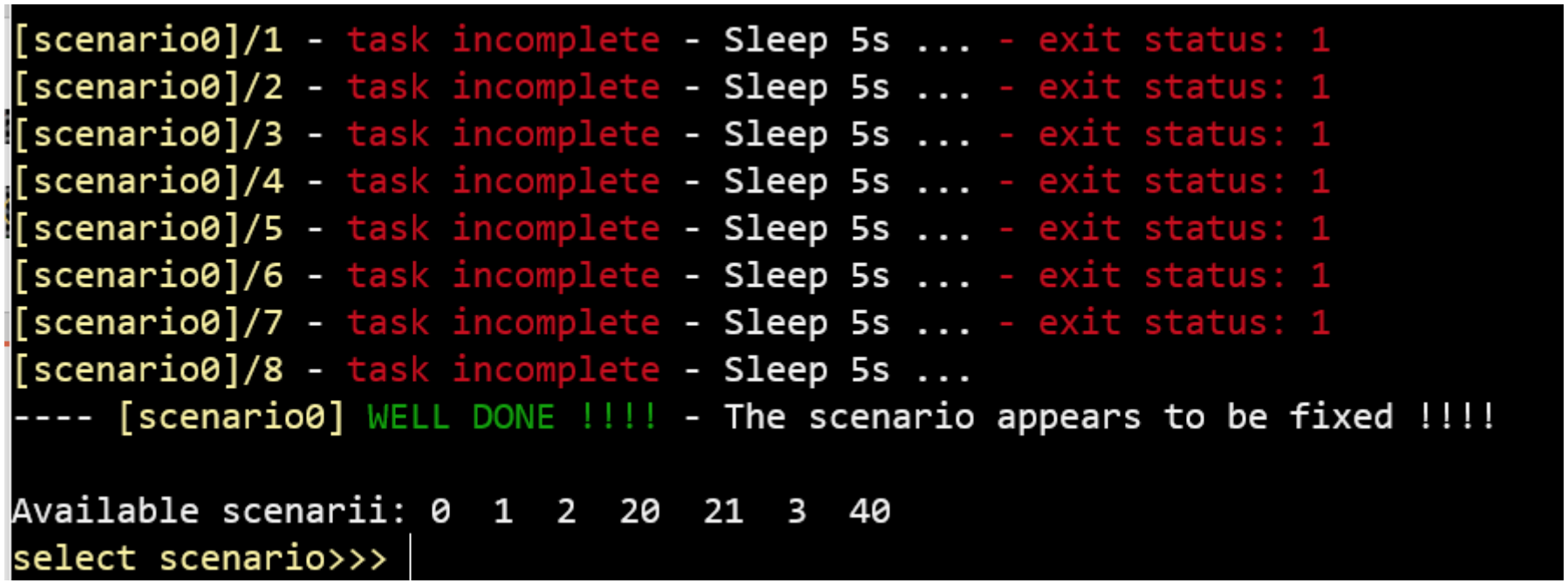
```
mjb@carbon ~/z/TOOLS/k8scenario/mjbright> kubectl config get-contexts
CURRENT   NAME          CLUSTER       AUTHINFO      NAMESPACE
          k8scenario    kind-kind     kind-kind     k8scenario
*         kind-kind     kind-kind     kind-kind     k8scenario
          kind-kind1    kind-kind1    kind-kind1
          kind-kind2    kind-kind2    kind-kind2
```

Troubleshooting – k8scenario

```
mjb@carbon ~/z/TOOLS/k8scenario/mjbright> kubectl create deploy --image mjbright/ckad-demo:1 basictest
deployment.apps/basictest created
mjb@carbon ~/z/TOOLS/k8scenario/mjbright>
```

```
mjb@carbon ~/z/TOOLS/k8scenario/mjbright> kubectl get all -A | grep basictest
k8scenario   pod/basictest-5779f4c99b-slx5c                   1/1     Running   0          16m
k8scenario   deployment.apps/basictest                  1/1     1            1           16m
k8scenario   replicaset.apps/basictest-5779f4c99b             1         1         1       16m
mjb@carbon ~/z/TOOLS/k8scenario/mjbright>
```

Troubleshooting – k8scenario



Troubleshooting – k8scenario

Scenarii are typically

- Tasks to perform (like scenario0 – create Pods adhering to some criteria)
- A problem to fix

In the future quiz functionality will be added

- k8scenario

Most Troubleshooting exercises should work on

- Provided AWS EC2 VMs
- Managed cloud
- Local (Minikube, Docker Desktop, KIND, microk8s)

As long as sufficient resources, single-node is mostly ok.

Questions?

Feedback ?

Please don’t leave without giving feedback

Google Forms:

http://bit.ly/2020JAN-K8S-TSHOOT-FBACK

PRs/issues

Questions ?

Feedback
- What worked well ?
- What didn’t ?
- Suggestions

Let’s have some Kubernetes fun!

And learn a thing or two..

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Thank you !

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Logistics

Break