CKA Curriculum Part 7 - Troubleshooting

Troubleshoot application failure

This is largely dependent on the application in question and what's being leveraged in terms of the Kubernetes infrastructure, but from a top level.

Pods

**`kubectl get pods` - Get the pods currently running and their status

**`kubectl logs nginx-web` - Get stderr/stdout from pod

**`kubectl describe pod nginx-web` - Get detailed information about a pod, including the steps that were required to run it, for example pulling images, assigning to nodes, etc.

```
Events:
 Type    Reason     Age   From                    Message
 ----    ------     ----  ----                    -------
 Normal  Scheduled  7s    default-scheduler       Successfully assigned default/nginx-web to k8
S-worker-04

 Normal  Pulling    6s    kubelet, k8s-worker-04  Pulling image "nginx"
 Normal  Pulled     4s    kubelet, k8s-worker-04  Successfully pulled image "nginx"
 Normal  Created    4s    kubelet, k8s-worker-04  Created container nginx
 Normal  Started    3s    kubelet, k8s-worker-04  Started container nginx
```

Services

```
kubectl get services
kubectl describe service kubernetes
```

When diagnosing services, particularly those which are only accessible internally (the default service type) spin up a pod to which you can exec into to run tests.

```
kubectl run -i --tty busybox --image=busybox -- sh
```

At which point tools such as ping/telnet

Deployments

Kubectl get deployments

Kubectl describe deployment nginx

Troubleshoot control plane failure

```
kubectl get componentstatuses

NAME                 STATUS    MESSAGE             ERROR
controller-manager   Healthy   ok
scheduler            Healthy   ok
etcd-0               Healthy   {"health":"true"}
```

Refer to part 2 under "Manage cluster component logs" to identify the log locations/journalctl commands for the various k8s cluster components.

Troubleshoot worker node failure

Refer to "CKA Curriculum Part 2 - Logging and Monitoring" for troubleshooting the controller components via log files or journalctl.

Troubleshoot networking

Refer to “CKA Curriculum Part 2 - Logging and Monitoring” for troubleshooting the CNI.

In addition:

- Spin up a pod for testing internal cluster networking (service IP)
- Describe pods/services to ensure the correct endpoints are being added
- Ensure pods/services are exposed on the correct port
- Exec directly into pods and run commands locally