Add Nodes to an RKE Cluster

Lab 5

What are you Learning?

In this lab you will add 2 nodes to your Rancher Kubernetes Engine (RKE) cluster, that you upgrade during Lab 4.

Why is it important?

The needs of your team, and the teams that you serve will change. Sometimes you may need new hardware with special functionality like Graphics Processing Units (GPUs). Other times more nodes or nodes of different sizes will be needed to accommodate growth.

Use `rke up` to Add Nodes to a Cluster

You'll use the configuration file from the last several labs to increase the number of nodes in the cluster. If you haven't already, provision two virtual machines from a cloud provider or internal an on-premises lab environment. Don't use ephemeral environments like an EC2 spot instances as you will need these machines and this environment for future labs.

1. Configure your infrastructure so that your nodes meet the RKE prerequisites.
2. Modify your cluster.yaml file, copying the node definition from your single node and changing the IP addresses, hostnames, and other configurations settings (if applicable) to match each of the new nodes.
3. Use rke up to add deploy Kubernetes processes and add the nodes to the cluster.

```
rke up

INFO[0000] Building Kubernetes cluster
INFO[0000] [dialer] Setup tunnel for host [10.0.0.1]
INFO[0000] [network] Deploying port listener containers
INFO[0000] [network] Pulling image [alpine:latest] on host
[10.0.0.1]
...
INFO[0101] Finished building Kubernetes cluster successfully
```

4. RKE will update cluster.rkestate file. Remember to keep that file, the kubeconfig file and the cluster.yml file in a safe place.

Testing That It Works

1. You can now use the kubeconfig file with kubectl to test access to the cluster.
2. You the Kubernetes Nodes API, to view the new nodes.

References

- Spot Instances - https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/using-spot-instances.html

- RKE Requirements - https://rancher.com/docs/rke/latest/en/os/
- Example Cluster.ymls - https://rancher.com/docs/rke/latest/en/example-yamls/
- Nodes - https://rancher.com/docs/rke/latest/en/config-options/nodes/
- Deploying Kubernetes with RKE - https://rancher.com/docs/rke/latest/en/installation/#deploying-kubernetes-with-rke
- Save Your Files - https://rancher.com/docs/rke/latest/en/installation/#save-your-files
- Kubeconfig File - https://rancher.com/docs/rke/latest/en/kubeconfig/
- Configure Access to Multiple Clusters - https://kubernetes.io/docs/tasks/access-application-cluster/configure-access-multiple-clusters/
- Viewing Pods and Nodes - https://kubernetes.io/docs/tutorials/kubernetes-basics/explore/explore-intro/