Deploy an RKE Cluster

Lab 14

What are you Learning?

In this lab you'll use the RKE Template and Node Template you created in earlier labs, to deploy an RKE cluster.

Why is it important?

Node templates along with RKE templates allow you to standardize the provisioning of all of the substrate serving their applications. You can use these tools to deploy Kubernetes in any cloud, that supports Docker Machine. While you may not see your cloud of choice at first glance, Rancher is extensible and supports many Node Drivers. Authoring Node Drivers is beyond the scope of this training, but you can even integrate your node driver into the Rancher UI. For an example you could review the Linode driver, and it's UI integration.

Deploy an RKE Cluster

1. If this were a production ready cluster make sure it's in line with the Checklist for Production-Ready Clusters, and meets a desirable production-level architecture. For this lab, a single-node cluster is fine.
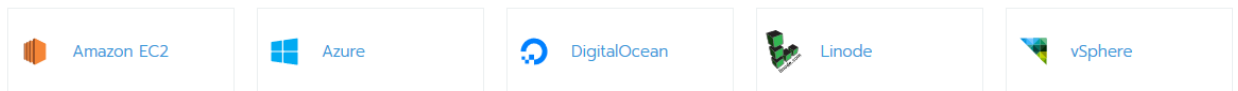2. Click on Clusters

    Global ⌄ | Clusters
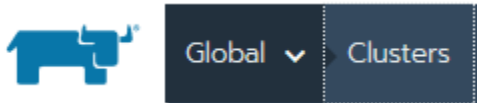
3. Click on Add Cluster

    Add Cluster
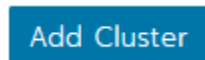
4. Select your infrastructure provider of choice

    With RKE and new nodes in an infrastructure provider

    | Amazon EC2 | Azure | DigitalOcean | Linode | vSphere |

5. Give your cluster a name

    Cluster Name *

    my-cluster

6. Use the node template you created to create a number of nodes, with a number of roles.

Name Prefix ⇕	Count ⇕	Template ⇕	Auto Replace ⇕	etcd	Control Plane	Worker	Taints
all-	1	my-node-template +	0 minutes	☑	☑	☑	✎ Taints −

    a. The prefix you enter will be used to help name the nodes in the infrastructure provider.

    Name Prefix ⇕

    all-

b. If a node goes down <u>Auto Replace</u> will ensure your <u>Node pool</u> always has a desire number of nodes.

Auto Replace ⬍

0	minutes

7. Click Use an existing RKE Template and revision, and select your RKE Template

Cluster Options

☑ Use an existing RKE Template and revision

Select a RKE Template	⌄

Select a RKE Template

my-template

8. Select an older version of Kubernetes, we'll upgrade this cluster in a later lab.

▼ Kubernetes Options
  Customize the kubernetes cluster options

Kubernetes Version

v1.17.4-rancher1-3	⌄

v1.17.4-rancher1-3

v1.16.8-rancher1-3

v1.15.11-rancher1-3

9. There are lots of options here, but they're locked by the RKE Template, For future clusters <u>review the documentation</u> to learn more about what options are available to you.

10. Click Create

Create   Cancel

11.
☐ Provisioning   my-cluster   Azure   1   n/a   n/a   ⋮
      Waiting for etcd and controlplane nodes to be registered

12. Your cluster is being provisioned

a. If you made a mistake entering your Cloud Credentials, you'll see it when click on on the nodes link.

| ☐ | Saving | all-1 | All | n/a | n/a | n/a | n/a | ⋮ |

Error with pre-create check: "Failed to authenticate using service principal credentials: Unexpected response from Get Subscription: subscriptions.Client#Get: Failure responding to request: StatusCode=404 -- Original Error: autorest/azure: Service returned an error. Status=404 Code=\"SubscriptionNotFound\" Message=\"The subscription 'abb5adde-bee8-4821-8b03-e63efdc7701c' could not be found.\""; Timeout waiting for ssh key

b. If this is the case navigate to the Cloud Credentials

Default Admin (admin)
Local User

API & Keys

Cloud Credentials

Node Templates

Preferences

Log Out
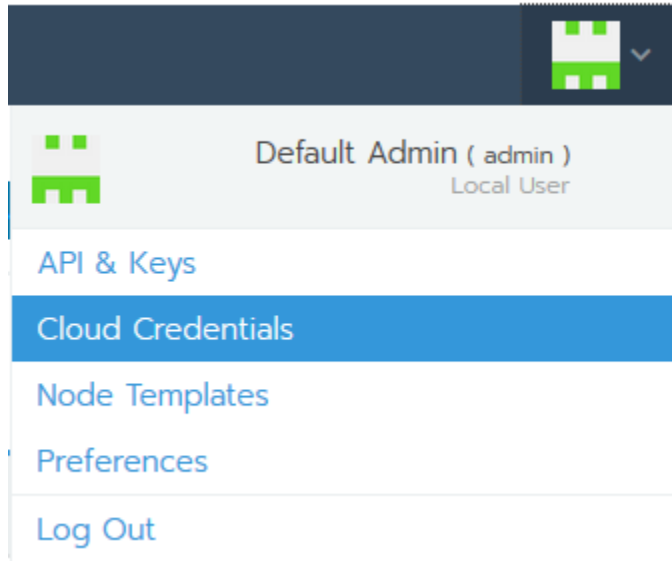
c. Edit the Credentials

| ☑ | your-credentials | 1 | | 2:46 PM | ⋮ |

Edit ✎

View in API ⚲

Delete 🗑

d. Fix, the settings and save your changes

e. The node controller inside of Rancher will soon create the node with your changes

Nodes

Delete 🗑

☐	State ↕	Name ↕

Pool: all-
Azure – eastus2/Standard_D1_v2 (my-node-template)

☐ Provisioning   all-1

(all-1) Configuring network security group. name="all-1-firewall" location="eastus2"

f. Docker will be installed

☐ Provisioning   all-1

Installing Docker...

g. And in several minutes RKE as well.

☐	State ↕	Name ↕

Pool: all-
Azure – eastus2/Standard_D1_v2 (my-node-template

☐ Registering   all-1
52.252.103.175 📋

Waiting to register with Kubernetes

ⓘ This cluster is currently **Provisioning**; areas that interact directly with it will not be available until the API is ready.

[network] Running workers -> control plane port checks

Testing That it Works

1. It will take several minutes, but RKE will be installed, as will various Rancher agents.

Global ∨   Clusters   Ap
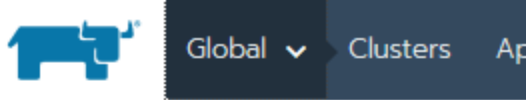
Clusters

Delete 🗑

☐	State ⬍	Cluster Name
☐	Active	local
☐	Provisioning	my-cluster

Pre-pulling kubernetes images

2. The status may change during provisioning, this is normal

☐ Provisioning   my-cluster

[addons] Executing deploy job rke-ingress-controller

☐ Waiting   my-cluster

Waiting for API to be available

3. The cluster will be Active under the Global menu.

☐ Active   my-cluster

References

- Managing Node Templates - https://rancher.com/docs/rancher/v2.x/en/user-settings/node-templates/
- RKE Templates and Infrastructure - https://rancher.com/docs/rancher/v2.x/en/admin-settings/rke-templates/rke-templates-and-hardware/
- Docker Machine - https://docs.docker.com/machine/
- Node Drivers - https://rancher.com/docs/rancher/v2.x/en/admin-settings/drivers/node-drivers/

- Docker Machine Driver – Linode - https://github.com/linode/docker-machine-driver-linode
- Rancher UI Driver – Linode - https://github.com/linode/rancher-ui-driver-linode
- About Node Auto Replace - https://rancher.com/docs/rancher/v2.x/en/cluster-provisioning/rke-clusters/node-pools/#about-node-auto-replace
- Node Pools - https://rancher.com/docs/rancher/v2.x/en/cluster-provisioning/rke-clusters/node-pools/#node-pools
- Cluster Configuration Reference - https://rancher.com/docs/rancher/v2.x/en/cluster-provisioning/rke-clusters/options/