**Setup kubernetes cluster on AWS using KOPS method**

**Kubernetes on AWS using Kops**

**1. Launch Linux EC2 instance in AWS (Kubernetes Client)**

**2. Create and attach IAM role to EC2 Instance.**

Kops need permissions to access

S3

EC2

VPC

Route53

Autoscaling

etc..

**3. Install Kops on EC2**

curl -LO https://github.com/kubernetes/kops/releases/download/$(curl -s https://api.github.com/repos/kubernetes/kops/releases/latest | grep tag\_name | cut -d '"' -f 4)/kops-linux-amd64

chmod +x kops-linux-amd64

sudo mv kops-linux-amd64 /usr/local/bin/kops

**4. Install kubectl**

curl -LO https://storage.googleapis.com/kubernetes-release/release/$(curl -s https://storage.googleapis.com/kubernetes-release/release/stable.txt)/bin/linux/amd64/kubectl

chmod +x ./kubectl

sudo mv ./kubectl /usr/local/bin/kubectl

**5. Create S3 bucket in AWS**

S3 bucket is used by kubernetes to persist cluster state, lets create s3 bucket using aws cli **Note:** Make sure you choose bucket name that is uniqe accross all aws accounts

aws s3 mb s3://javahome.in.k8s --region ap-south-1

**6. Create private hosted zone in AWS Route53**

1. Head over to aws Route53 and create hostedzone
2. Choose name for example (javahome.in)
3. Choose type as privated hosted zone for VPC
4. Select default vpc in the region you are setting up your cluster
5. Hit create

**7 Configure environment variables.**

Open .bashrc file

vi ~/.bashrc

Add following content into .bashrc, you can choose any arbitary name for cluster and make sure buck name matches the one you created in previous step.

export KOPS\_CLUSTER\_NAME=javahome.in

export KOPS\_STATE\_STORE=s3://javahome.in.k8s

Then running command to reflect variables added to .bashrc

source ~/.bashrc

**8. Create ssh key pair**

This keypair is used for ssh into kubernetes cluster

ssh-keygen

**9. Create a Kubernetes cluster definition.**

kops create cluster \

--state=${KOPS\_STATE\_STORE} \

--node-count=2 \

--master-size=t3.medium \

--node-size=t3.medium \

--zones=ap-south-1a,ap-south-1b \

--name=${KOPS\_CLUSTER\_NAME} \

--dns private \

--master-count 1

**10. Create kubernetes cluster**

kops update cluster --yes --admin

Above command may take some time to create the required infrastructure resources on AWS. Execute the validate command to check its status and wait until the cluster becomes ready

kops validate cluster

For the above above command, you might see validation failed error initially when you create cluster and it is expected behaviour, you have to wait for some more time and check again.

**11. To connect to the master**

ssh admin@api.javahome.in

**Destroy the kubernetes cluster**

kops delete cluster --yes

**Update Nodes and Master in the cluster**

We can change numner of nodes and number of masters using following commands

kops edit ig nodes change minSize and maxSize to 0

kops get ig- to get master node name

kops edit ig - change min and max size to 0

kops update cluster --yes

**Optional (Create terraform scripts through kops)**

https://github.com/kubernetes/kops/blob/master/docs/terraform.md