AWS EKS HANDS-ON

FOR DEVOPS ENGINEERS

TRAIN WITH SHUBHAM

AMAZON ELASTIC KUBERNETES SERVICE (EKS) NOTES

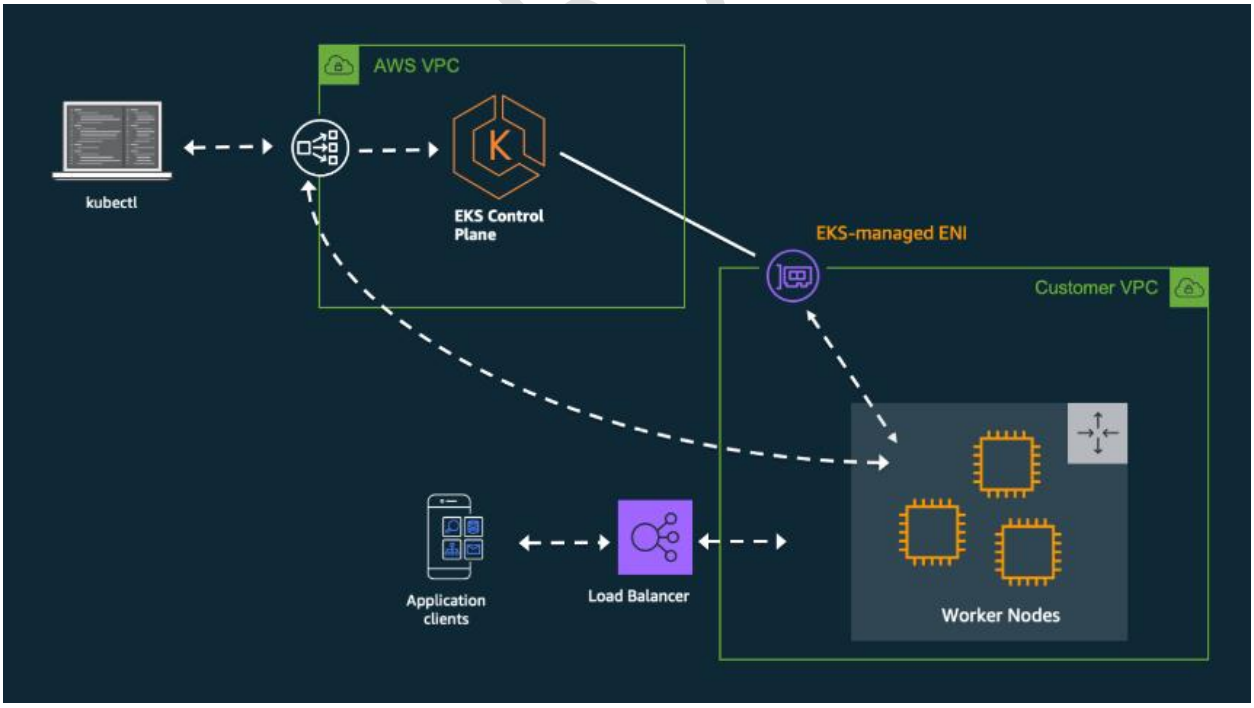
What is Amazon EKS?

- Amazon Elastic Kubernetes Service (EKS) is a managed Kubernetes service provided by AWS. It makes it easy to deploy, manage, and scale containerized applications using Kubernetes.

Benefits of Amazon EKS

- Scalability: EKS allows you to scale your applications effortlessly as your requirements change.
- High Availability: It offers a highly available and reliable environment for your applications.
- Easy Management: AWS manages the control plane, so you can focus on your applications.

Architectural Diagram:



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Setting up Amazon EKS:

1) **Create an AWS Account**
   - If you haven't already, sign up for an AWS free tier account.
2) **Install AWS CLI**
   - Install and configure the AWS Command Line Interface (CLI) on your local.

COMMANDS:

```
curl "https://awscli.amazonaws.com/awscli-exe-linux-x86_64.zip" -o "awscliv2.zip"

sudo apt install unzip

unzip awscliv2.zip

sudo ./aws/install -i /usr/local/aws-cli -b /usr/local/bin --update
```

3) **Create an IAM Role for EKS**
   - Create an IAM role with the necessary permissions for EKS.

STEPS:

1. **Create an IAM User:**
   - Go to the AWS IAM console.
   - Create a new IAM user named "eks-admin."
   - Attach the "AdministratorAccess" policy to this user.
2. **Create Security Credentials:**
   - After creating the user, generate an Access Key and Secret Access Key for this user.

4) **Launch AWS instance and get access to the instance**
5) **Configure AWS CLI:**
6) **Configure the AWS CLI with the Access Key and Secret Access Key from step 2:**

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7) Kubernetes tools setup:

```
aws configure
```

- **Install kubectl:**

```
curl -o kubectl https://amazon-eks.s3.us-west-2.amazonaws.com/1.19.6/2021-01-05/bin/linux/amd64/kubectl
chmod +x ./kubectl
sudo mv ./kubectl /usr/local/bin
kubectl version --short –client
```

- **Install eksctl:**

```
curl --silent --location "https://github.com/weaveworks/eksctl/releases/latest/download/eksctl_$(uname -s)_amd64.tar.gz" | tar xz -C /tmp
sudo mv /tmp/eksctl /usr/local/bin
eksctl version
```

8) EKS Cluster Setup:

- Use eksctl to create the EKS cluster

NOTE: Make sure to replace <cluster-name> and <region> with your desired values

```
eksctl create cluster --name <cluster-name> --region <region> --node-type t2.micro --nodes-min 2 --nodes-max 2
```

- Update your kubeconfig to connect to the newly created EKS cluster:

```
aws eks update-kubeconfig --region <region> --name <cluster-name>
```

9) Verify Nodes:

```
kubectl get nodes
```

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Basic to Advanced EKS Commands

1. **Get Cluster Information**

   aws eks describe-cluster --name <cluster-name> --region <region>

2. **List Worker Nodes**

   kubectl get nodes

3. **Deploy an application**

   kubectl apply -f <yaml-file>

4. **Scale a Deployment**

   kubectl scale deployment <deployment-name> --replicas=<number>

5. **View Pods in a Namespace**

   kubectl get pods -n <namespace>

6. **Check Cluster Events**

   kubectl get events

7. **Create a Persistent Volume**

   kubectl apply -f <pv-definition.yaml>

8. **Apply a Rolling Update**

   kubectl set image deployment/<deployment-name> <container-name>=<new-image>

9. **Enable Autoscaling**

   kubectl autoscale deployment <deployment-name> --min=3 --max=5