EKS Cluster Setup

Topics Covered

1. Introduction to AWS EKS cluster
2. Benefits of AWS EKS cluster
3. Prerequisites to create EKS.
4. Different ways to setup EKS cluster.
   - AWS Management Console.
   - Infra Structure As A code(Terraform).
   - eksctl utility provided by AWS.
5. Step by step procedure to setup EKS Cluster
6. Deploy Demo Application.

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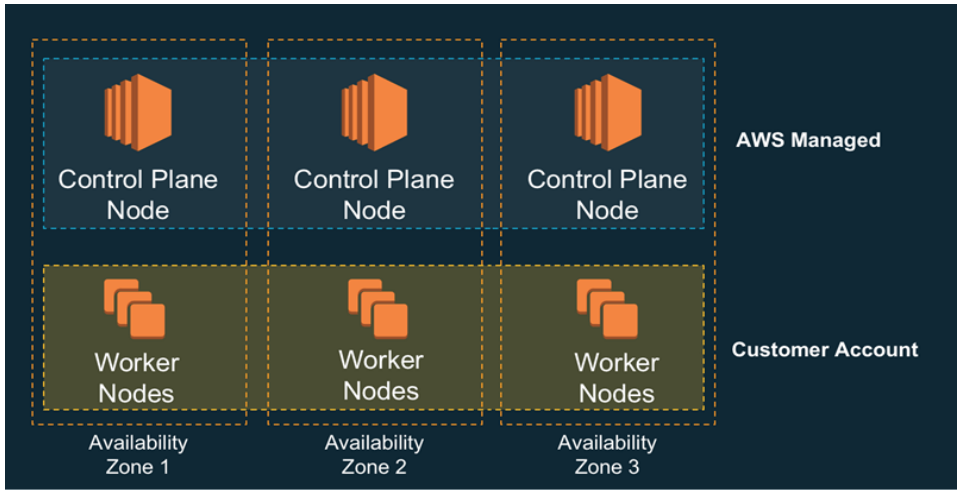
EKS Introduction

- Amazon Elastic Kubernetes Service (Amazon EKS) is a fully managed Kubernetes service.
- EKS is the best place to run Kubernetes applications because of its security, reliability, and scalability.
- EKS can be integrated with other AWS services such as ELB ,Amazon CloudWatch, Auto Scaling Groups, AWS Identity and Access Management (IAM), and Amazon Virtual Private Cloud (VPC), providing you a seamless experience to monitor, scale, and load-balance your applications.
- Makes it easy for you to run Kubernetes on AWS without needing to install, operate, and maintain your own Kubernetes control plane.

Managed control plane

Amazon EKS provides a scalable and highly-available control plane that runs across multiple AWS availability zones. The Amazon EKS service automatically manages the availability and scalability of the Kubernetes API servers and the etcd persistence layer for each cluster. Amazon EKS runs the Kubernetes control plane across three Availability Zones in order to ensure high availability, and it automatically detects and replaces unhealthy masters.



Prerequisites

- AWS Account With Admin Privileges.
- Instance to manage/access EKS cluster using kubectl.
- AWS CLI access to use kubectl utility.

Step By Step Procedure Using AWS Console

1. Create IAM Role For EKS Cluster.
   - **EKS – Cluster**
2. Create Dedicated VPC For EKS Cluster. Using CloudFormation. https://amazon-eks.s3.us-west-2.amazonaws.com/cloudformation/2020-08-12/amazon-eks-vpc-private-subnets.yaml
3. Create EKS Cluster.
4. Create IAM Role For EKS Worker Nodes.
   - **AmazonEKSWorkerNodePolicy**
   - **AmazonEKS_CNI_Policy**
   - **AmazonEC2ContainerRegistryReadOnly**
5. Create Worker Nodes.
6. Create An Instance (If Not Exists) Install AWS CLI , IAM Authenticator And kubectl. Configure AWS CLI using Root or IAM User Access Key & Secret Key. Or Attach IAM With Required Policies.

   aws eks update-kubeconfig --name <ClusterName> --region <RegionName>

1. Deploy Demo Application.

Using Terraform

Step By Step Procedure Using Terraform

1. Create An Instance (If Not Exists) Install Terraform , Create IAM Role with required policies for terraform and attach to Instance.
2. Install IAM Authenticator And kubectl to access/manager cluster.
3. Setup EKS Cluster Using Terraform Scripts.

   Update region name in which you want to create EKS &

   Access Key Name For Worker Nodes In Variables File.
4. Configure kubectl to access Cluster.
5. Deploy demo application

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