#Day1 -Elastic Kubernetes Services [EKS]

EKS is a managed service also known as Kubernetes as a Service, which is managed by public cloud such as AWS.

EKS leverages below services of AWS
ELB/ECS/EFS/EC2/VPC/AZ.

EKS can be created using WebUI/CLI/API -(Terraform)

CLI - there are 2 methods :

- 1) AWS EKS
- 2) eksctl - using this we can specify how many worker nodes are required . Also resources in the worker node such as RAM,CPU etc.

Recommended method is eksctl using which we can create nodegroups & create a cluster.
EKS uses cloudformation service in the background ,which creates a stack of resources.

EKS uses LoadBalancer service to keep the cluster highly available. By default it uses classic load balancer which provides public IP to access pods & also provides load balancing. It distributes traffic among the pods such that load is evenly distributed for incoming requests.

Kubernetes master node is critical & it has various services such as

- API Server,
- Scheduler,
- Controller,
- etcd DB

- **API Server** - which accepts images using kubectl client & send to scheduler.

- **Scheduler** contacts controller which in turn contact the kubelet program in the worker node so as to launch the container using docker engine.

- **Controller** tracks all the nodes & works with scheduler to launch/terminate pods as part of the scaling process using replicas.

- **Etcd** : Master has a DB known as etcd which stores metadata & config files.

The Kubelet program is required to be present on all the worker nodes.
Load balancer service in Kubernetes provides IP address to pods & also provides load balancing across all the pods.
Persistent storage is required in order to preserve the data. This is useful in scenarios where content of the web page is changed. To overcome this we can use EBS volume. Pod requests pvc to claim

volume. PVC in turn gets this volume from pv. PV gets the volume from storage class provisioned by EBS.

Default storage class is gp2. However , we can change it to Provisioned IOPS (io1) using annotations in the storage class description.
Using reclaim policy (delete/retain) we can either retain EBS volume or delete it.
When we delete the EKS Cluster ,Cloudformation services also gets deleted