Kubernetes Engine Course Definition list

- Containers are a standard unit of software that packages up code and all its dependencies, so the application runs quickly and reliably from one computing environment to another.
- A Cluster is a set of computers working as an instance managed by Kubernetes. Clusters are managed by Kubernetes which is an orchestrator which manages jobs (processes or pods) Regional clusters have masters and these nodes spread across 3 zones.
- Pods are the most basic deployable unit within a Kubernetes cluster. A Pod runs one or more containers. Zero or more Pods run on a node. Each node in the cluster is part of a node pool. In GKE, these nodes are virtual machines, each running as an instance in Compute Engine
- Projects are the unit of billing and allow administrators to associate Cloud Identity and Access Management (Cloud IAM) roles with users. When roles are applied at the project level, they apply to all resources encapsulated within the project.
- Deployments provides declarative updates for Pods and ReplicaSets. They run multiple replicas of your application and automatically replaces any instances that fail or become unresponsive. Deployments help ensure that one or more instances of your application are available to serve user requests. Deployments are managed by the Kubernetes Deployment controller
- Kubernetes Deployment controller keeps track of every Deployment that has been made up to a configurable limit specified.

- Container Registry is a single place for your team to manage Docker images, perform vulnerability analysis, and decide who can access what with fine-grained access control.
- Repository (Image repository) - A repository is used to store our working images. On GCP Cloud Source Repository is the service of choice.
- Container-Optimized OS node image is based on a recent version of the Linux kernel and is optimized to enhance node security. It is backed by a team at Google that can quickly patch it for security and iterate on features.
- Images – Each node runs a specialized OS image for running your containers. You can specify which OS image your clusters and node pools use.
- Metadata is data about data. You may use either labels or annotations to attach metadata to Kubernetes objects. Labels can be used to select, identify, label. Tools and libraries can retrieve this metadata.
- /Etcd is a consistent and highly available key value store used as Kubernetes' backing store for all cluster data.
- Scheduler (Kube-scheduler) Kubernetes scheduler is a part of the open source Kubernetes container orchestration platform that controls performance, capacity and availability through policies and topology awareness. Kube-scheduler can also distribute copies of Pods across different Nodes for high availability
- Nodes are the worker machines that run your containerized applications and other workloads. The individual machines are Compute Engine VM instances that GKE creates on your behalf when you create a cluster. A node runs the services necessary to support the Docker containers that make up your cluster's workloads. These include the Docker runtime and the Kubernetes

node agent (kubelet) which communicates with the master and is responsible for starting and running Docker containers scheduled on that node

- Master (Node) are nodes that maintain the cluster . The master is the unified endpoint for your cluster. All interactions with the cluster are done via Kubernetes API calls, and the master runs the Kubernetes API Server process to handle those requests. You can make Kubernetes API calls directly via HTTP/gRPC, or indirectly, by running commands from the Kubernetes command-line client (kubectl) or interacting with the UI in the Cloud Console.
- Anthos is a modern application management platform that provides a consistent development and operations experience for cloud and on-prem environments. The primary computing environment for Anthos relies on Google Kubernetes Engine (GKE) and GKE On-Prem to manage Kubernetes installations in the environments where you intend to deploy your applications.
- GKE on Premises GKE On-Prem is a key component of Anthos. GKE On-Prem lets customers take advantage of Kubernetes and cloud technology in the data center. Provides the same Google Kubernetes Engine (GKE) experience with quick, managed, and simple installs as well as upgrades validated by Google
- K8s is an abbreviation derived by replacing the 8 letters “ubernete” with “8”.
- Knative is an open source project started by engineers from Google, Pivotal, and other industry leaders. It's a collection of components that extend Kubernetes. It includes three major parts: Serving, Build, and Eventing.