



Lab #1: Introduction to GKE
SOFE 4790U : Distributed Systems
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Kubernetes

Kubernetes is a distributed system environment hosted by Google through the GCP. It allows developers to implement clusterized computing and distribute the load of their system through a multi-node docker which can support a multitude of system designs. Developers are able to select and containerize images through specific pods by using terminal commands within the GCP and can corroborate this with a database where they can pull images from.

Terminology

Term	Description
GCP	Google Cloud Platform, a cloud hosted computing platform which allows users to implement a list of different software systems.
GKE	Google Kubernetes Engine, a cloud environment for managing and deploying distributed systems and their components such as clusters, pods, and containerized images.
Docker	The name of the environment which utilizes the clustered containerized images.
Image	The word used in place of file in a docker environment.
Container	The word used to describe an operating image.
Cluster	A group of processes or pods in the docker environment which can be operated.
Pod	A singular process in a cluster which holds the operating containers.

Advantages

Some advantages to using Kubernetes rather than other docker software is the level of autoscaling available, this means that the task of assigning and managing each container with its cluster developers can instead build guidelines in the kubernetes framework to automate the allocation of resources and thus allow the system to auto scale to meet the level of use. Unlike other docker systems Kubernetes also has built in monitoring software allowing users to view data at the source rather than pulling the data from the system and viewing it in external hardware. Finally because Kubernetes is hosted on the GCP it has wide availability and compatibility to other imperative and cutting edge development systems built in.

Disadvantages

One disadvantage of Kubernetes is built into its wide array of uses because the system is so diverse and complex it has a long learning curve and requires a high attention to detail compared to some other docker applications.