
Kubernetes Assignment 2

1. What is the importance of Load Balance in Kubernetes?

Load balancing helps distribute the incoming traffic to multiple servers, ensuring that the application is available to every user. All the incoming traffic will come to the single IP address on the load balancer visible to the outside world.

Later, the traffic will get distributed to a particular pod using a round-robin algorithm. Whenever a pod fails, the load balancer gets notified, and it will avoid routing the traffic to that pod and check for other available pods.

2. What is the relationship between Kubernetes and Docker?

Even though Docker and Kubernetes are separate technologies, they actually complement each other and work great together. In fact, they have a symbiotic relationship.

Docker is at the core of containerization technology—it allows you to create and deploy application containers. If your application is still simple, Docker has the essential infrastructure for managing its lifecycle.

As your containerized application becomes bigger and more complex, possibly needing multiple clusters and more sophisticated management, Kubernetes becomes a handy tool. It offers a useful orchestration platform for your Docker containers. Kubernetes does not create containers; it actually requires a container tool to run, of which Docker is the most popular option.

So Docker vs. Kubernetes actually points to their ability to work together to realize the promise of the containerization technology—code once and run anywhere, regardless of the scale.

Using Kubernetes with Docker results in the following benefits:

- It enhances the robustness of your infrastructure. Your applications are more highly available.
 - It improves the scalability of your applications. You can easily spin up your applications to handle more load on demand, potentially lowering resource wastages and enhancing user experience.
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- Because apps are broken down into smaller constituents, they are easier to maintain.

3. What distinguishes Kubernetes from other containers?

- Kubernetes gives the user control over which server will host the container. It will be in charge of deciding how to launch. As a result, Kubernetes automates a variety of manual tasks.
- Kubernetes is a container orchestration system that manages multiple clusters at the same time.
- It also offers additional services such as container management, security, networking, and storage.
- Kubernetes keeps track of nodes and containers' health.
- Users can easily and quickly scale resources not only vertically but also horizontally with Kubernetes.

4. What exactly do you mean when you say heapster?

Heapster helps gather data from containers within a cluster. Heapster is a performance monitoring and metrics collection system compatible with Kubernetes versions 1.0. 6 and above. It allows for the collection of not only performance metrics about your workloads, pods, and containers, but also events and other signals generated by your cluster.

5. What exactly is a kubelet?

A kubelet is one of the main processes on the Kubernetes node, helping in performing operations on containers. It is a daemon responsible for communicating with the Kubernetes master for every machine available in the cluster. It keeps accessing the controller and checks and reports on the cluster's status.

Furthermore, it can merge all available resources such as CPU, disk, and memory into a large Kubernetes cluster and send the response back to the API-server regarding the container's state to observe its current state.
