Kubernetes Assignment 5

1. How well do you understand Kube-proxy?

Kube-proxy can run on each and every node and can do simple TCP/UDP packet forwarding across backend network service. So basically, it is a network proxy that reflects the services as configured in Kubernetes API on each node. So, the Docker-linkable compatible environment variables provide the cluster IPs and ports which are opened by proxy.

2. What does Kubernetes controller manager imply?

The controller manager is a daemon that is used for embedding core control loops, garbage collection, and Namespace creation. It enables the running of multiple processes on the master node even though they are compiled to run as a single process.

3. What exactly do you mean by ETCD?

Kubernetes uses etcd as a distributed key-value store for all of its data, including metadata and configuration data, and allows nodes in Kubernetes clusters to read and write data. Although etcd was purposely built for CoreOS, it also works on a variety of operating systems (e.g., Linux, BSB, and OS X) because it is open-source. Etcd represents the state of a cluster at a specific moment in time and is a canonical hub for state management and cluster coordination of a Kubernetes cluster

4. What does "container resource monitoring" imply?

It is essential to understand how an application performs and utilizes resources at different abstraction levels from the user’s perspective. Kubernetes differentiates clusters by creating different abstraction layers like container pods. Now, it is easier to monitor each level individually, known as container resource monitoring.

You can use any of the following tools for container resource monitoring:

- Heapster: Helps gather data from containers within a cluster
- influxDB: You can use this tool along with the heapster for visualizing data within the Kubernetes environment.
- Grafana: A time-series database that stores all data gathered by heapster pods

5. What are federated clusters and how do they work?

Cluster federation is the aggregation of multiple clusters to treat them as a single logical cluster. Multiple clusters can be managed as a single cluster in this way. They are able to stay with the help of federated groups. Users can also create multiple clusters within the data Centre or cloud and use the federation to control and manage them all from a single location.

The following steps can be used to perform cluster federation:

- The ability to have DNS and Load Balancer with backend from the participating clusters is provided by this cross-cluster service.
- Users can synchronise resources across clusters in order to deploy the same deployment set across all of them.