Pods, StatefulSets, Deployments & DaemonSets

Pods

- Single instance of the application we deployed within a container
- For high availability and load sharing we create more instances of our application through more number of pods and use different controller managed techniques - statefulsets, deployments, daemonsets.
- Pod is assigned a unique IP address

Controllers

- Controllers create pods from Podtemplate & manage the various instances
- Controller Selector should match labels of Podtemplate
- Pods defined in templates will take the namespace of the controller.

StatefulSets & Deployments

- StatefulSets have a naming convention as name of the statefulset-#{number} unlike other controllers.
- Pods with name #{statefulset-name}-0 is first created and followed by #{statefulset-name}-1, #{statefulset-name}-2 and so on. While deletion it takes the reverse order.
- Statefulsets takes time to get all it’s pods into the running state as compared to a deployment.
- Service name needs to be mentioned while defining a statefulset.

DaemonSets

- Need an existing namespace defined in the yaml file unlike deployment or statefulsets which take default as their namespace if a non existing namespace is used
- HostPort is needed to access the pod using NodeIP
- HostPort/ContainerPort always set to 80 for nginx