04 Kubernetes Namespaces

What are namespaces?

We use namespace to organize resources in namespaces. It is a virtual cluster inside a cluster.

4 Namespaces by default:

1. kube-system → contains system processes form master processes, kubectl processes, etc. Do not create or modify in kube-system
2. kube-public → publicly accessible data. A configmap, which contains cluster information.
3. kube-node-lease → It holds information about the heartbeats of nodes. Each node has associated lease object in namespace. It determines the availability of a node.
4. default → Resources you create are located here.

What is the use of namespaces?

1. Just for managing all the resources. Eg: a namespace for databases, monitoring, logging, elastic stack, nginx ingress, etc.
2. Many teams, same application. So that teams don't overwrite each others deployments.
3. Resource Sharing: Staging and Development
4. Blue/Green Deployment: Versions of application differ, but use the same resources.
5. Access and Resource Limits on Namespaces

Characteristic of Namespaces

1. Each NS must define own ConfigMap.
2. Components which can't be created within a NS: volume, node, etc. (as they live globally in a cluster, we can't isolate them) (use `Kubectl api-resources --namespaces=false` to see all the non-namespaceable resources)