

Objective3: Prepare a deployment strategy that can be adapted for Staging, UAT and Production. Note that the staging setup needs to be less in terms of operating cost.

My strategy would be to setup a deployment pipeline for a canary / phased rollout of an applications micro services.

The high level requirement to do canary release of an applications service in to staging, UAT and production environment is:

1. Each micro service should be packaged as a separate Helm chart.
2. Different teams manages the different micro services and each team should be able to release their micro service independent of other micro services.
3. The service mesh **Istio** should be installed on k8s cluster
4. For staging and UAT environment only Helm and Istio would be available on the cluster. In these environment we will not use tools like flagger is not an option.
5. It will be possible for the team to rollout the new version of the application using the same helm chart in the following phases:
 1. 10% of traffic routed to new version
 2. 90% of traffic routed to new version
 3. 100% of traffic routed to the new
6. After each of these stages manual judgement was needed to move to the next release stage
7. Rollback to the pervious version of the application should be possible at each of these stages using the same Helm chart

Details of the release stages

Stage1 : 100 % traffic to production deployment which has current version of application. No release in process, canary deployment has 0 replicas and no traffic routed to canary deployment pods

Stage2 : Release in progress, few canary replicas with next version of application (tag 02). 10 % of traffic routed to canary deployment pods, 90% of the traffic routed to production deployment pods

Stage3 : 90% of the traffic routed to canary deployment pods, and 10% of the traffic routed to production deployment pods

Stage4 : 100% of traffic routed to canary deployment pods.

Stage5 : Perform rolling update of production deployment pods to the new version of tha app (tag 02), while 100% traffic is being touted to canary deployment pods. This step is needed before traffic can be routed back to the production deployment pods.

Stage6: Switch traffic back to production deployment pods which now have the latest version of the application.

NOTE: We can rollback to the pervious version of the app during any of the stages.

