# Migration plan for (Add the application name)

* ECS to Kubernetes 1.2.1

## 1. Overview

* We need to migrate complete infrastructure for (your application) from ECS to kubernetes ,which would enable us to have highly scalable and serverless infrastructure.

## 2. Goals

* 2.1. Migrating to kubernetes v 1.2.1 : Migrating from ECS stack to kubernetes cluster.
* 2.2. Maintain minimum/no downtime at migration: The app should not be down during the migration process.

## 3. Points to consider.

* 3.1. VPC is new and different from the existing one for both environments staging & prod and taken care by terraform eks module.
* 3.2. Subnets will be new and different from the existing one for both environments staging & prod
* 3.3. Security groups should be new
* 3.4. 3.4. Use the docker containers as a pods in kubernetes cluster with (your required size) nodes

## 4. Migration phase 1.

* 4.1. Create core -infra including vpc, subnets, routing-tables, security-groups
* 4.2. Bring up the Kubernetes cluster
* 4.3. Setup docker registry on ECR
* 4.4. Build app image and push to ECR
* 4.5. Test build and push pipeline
* 4.6. Migrate the RDS to new VPC, Make sure RDS is accessible from the application pod on the cluster
* 4.7. Setup ElasticSearch with access policy and add NAT gateway IP for kubernetes cluster
* 4.8. Snapshot the RDS database
  + 4.9.1. Namespace
  + 4.9.2. Ingress
  + 4.9.3. Secrets
  + 4.9.4. Deployment
  + 4.9.5. Service
* 4.10. Create deployment configuration as per ECR url for your specific application and deploy.We might use docker hub instead
* 4.11. Make the host entry to test application
* 4.12. Test the application from browser for reachability and login
* 4.13. Verify SSL for the domain as per environment (SSL would not be valid at this point)
* 4.14. Test deployment pipeline
* 4.15. Snapshot the RDS database

## 5. Migration phase 2.

* 5.1. Testing team makes the host entry in their system to test the application on the new cluster.
* 5.2. Testing team access the application on the browser (Not valid SSL yet).
* 5.3. Reduce the TTL to DNS record.
* 5.4. Testing team confirm the application and related components are working fine.

## 6. Migration phase 3.

* 6.1. Snapshot the RDS database
* 6.2. Change the DNS to cluster
* 6.3. Ensure the valid SSL certificate is issued by the certificate service
* 6.4. Ask the test team to test the application again

## You can also add the same using a terraform template including ECS and EKS cluster.