**ReplicaSet:**

* ReplicaSet is the next-generation Replication Controller.
* The only difference between a ReplicaSet and a Replication Controller right now is the **“selector support”.**
* ReplicaSet supports the new **equality/set-based selector** requirements as described in the labels user guide whereas a Replication Controller only supports **equality-based selector** requirements.
* This is also create and manage the POD life cycle

#ReplicationController Equality based

apiVersion: v1

kind: ReplicationController

metadata:

name: <nameOfthe-ReplicationController>

namespace: <namespacename>

labels:

<key>: <value>

spec:

replicas: <NoOReplicas>

selector:

<key>: <value> # this selector key/value same as pod(template) labels key/value

templeate: # POD Template

metadata: <NameOfthe-pod>

labels:

<key>: <value>

spec:

containers:

- name: <container-name>

image: <image-name>

ports:

containerPort: <portNumber>

#ResplicaSet setBased

apiVersion: apps/v1

kind: ReplicaSet

metadata:

name: <nameOftheReplicaSet>

labels:

key:value

spec:

replicas: <NumberOf-pods>

selector:

matchLabels:

<label-key>: <label-value>

matchExpression:

- key: <label-key>

operator: In/not In

values:

- <labelValue>

- <labelValue>

apiVersion: apps/v1

kind: ReplicaSet

metadata:

name: nginx-relicaset

spec:

replicas: 3

selector:

matchLabels:

app: nginx-app

matchExpression:

- key: env

operator: In

values:

- dev

template:

metadata:

name: nginx-pod

labels:

app: nginx-app

env: dev

spec:

containers:

- name: nginx-container

image: nginx

ports:

- containerPort: 80

ImagePullBackOff or ErrorImagePull

POD Status

Pending: This can happen if your cluster doesn't have any resources(Nodes or CPU/Memory) to schedule the nodes. your pods might have some other dependent k8s objects

Running: No issues

ImagePullBackOff/ErrImagePull: might be repository or registry name invalid

CrashLoopBackOff: application is not started properly

we can trouble shoot using below command

kubectl describe <pod-name> -n <name-space-name>