**Kubernetes "taint" and "tolerations" to deploy pods**

Taints are properties assigned to nodes that specify constraints or preferences for scheduling. They come in different types, including NoSchedule (which prevents pod scheduling), PreferNoSchedule (which discourages pod scheduling but allows it if necessary), and NoExecute (which can evict existing pods). Taints are applied to nodes, influencing which pods can be placed on those nodes.

Tolerations are settings within a pod's configuration that allow it to be scheduled on nodes with specific taints. Tolerations indicate that a pod can "tolerate" the constraints imposed by certain taints. They specify criteria such as the taint's key, operator, value, and effect, allowing pods to be scheduled on nodes that match these criteria.

**Important Note:**

Taint is applicable at the level of node but toleration is applicable at the level of pod.

First, the nodes need to be tainted. While tainting the nodes, we generate a key-value pair for the node. This will be used in the deployment definition file as a toleration to deploy the pod on that particular node.

**Use the below command to taint the node-**

kubectl taint nodes <node\_name> node1=tainted:NoSchedule

Here node1 is a “key” and tainted is a “value”. (One can choose any key-value pair)

Once a node is tainted, no pods will be scheduled on it unless it has the toleration with the node’s key-value pair.

Below is the definition file for toleration

apiVersion: apps/v1

kind: Deployment

metadata:

name: nginx

spec:

replicas: 1

selector:

matchLabels:

app: nginx

template:

metadata:

labels:

app: nginx

spec:

containers:

- name: nginx

image: nginx

ports:

- containerPort: 80

tolerations:

- key: node1

value: tainted

effect: NoSchedule

operator: Equal

The highlighted part in the above definition file is the toleration segment. This ensures that the pod can run on the tainted node.

**Command to remove the taint from the node**

kubectl taint nodes <node\_name> node1=tainted:NoSchedule-  
( The command remains the same. Just need to add “-“ at the end)

**Command to check taints on the nodes**

kubectl get nodes -o custom-columns=NODE:.metadata.name,TAINTS:.spec.taints