Taints - Node

```
kubectl taint nodes node-name key=value:taint-effect
```

NoSchedule | PreferNoSchedule | NoExecute

What happens to PODs that do not tolerate this taint?

```
kubectl taint nodes node1 app=myapp:NoSchedule
```

→ NoSchedule → will not schedule new pods, but old pods will keep running

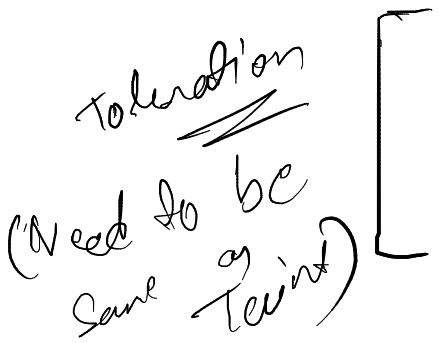
→ NoExecute → New also Old Pods will be evicted if they has no tolerations for taint

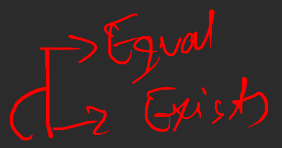
Tolerations - PODs

```
kubectl taint nodes node1 app=myapp:NoSchedule
```

pod-definition.yml

```yaml
apiVersion:
kind: Pod
metadata:
  name: myapp-pod
spec:
  containers:
  - name: nginx-container
    image: nginx

  tolerations:
  - key:"    "
    operator:"Equal"
    value:"    "
    effect:"          "
```

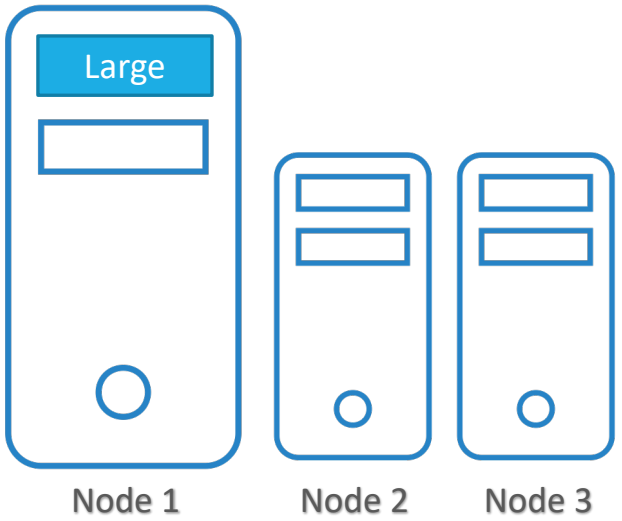




Node Selectors [Label based]

pod-definition.yml

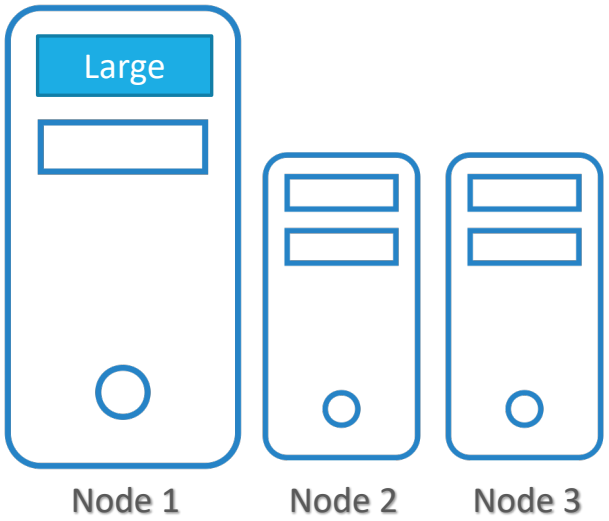
```yaml
apiVersion:
kind: Pod
metadata:
  name: myapp-pod
spec:
  containers:
  - name: data-processor
    image: data-processor

  nodeSelector:
    size: Large
```



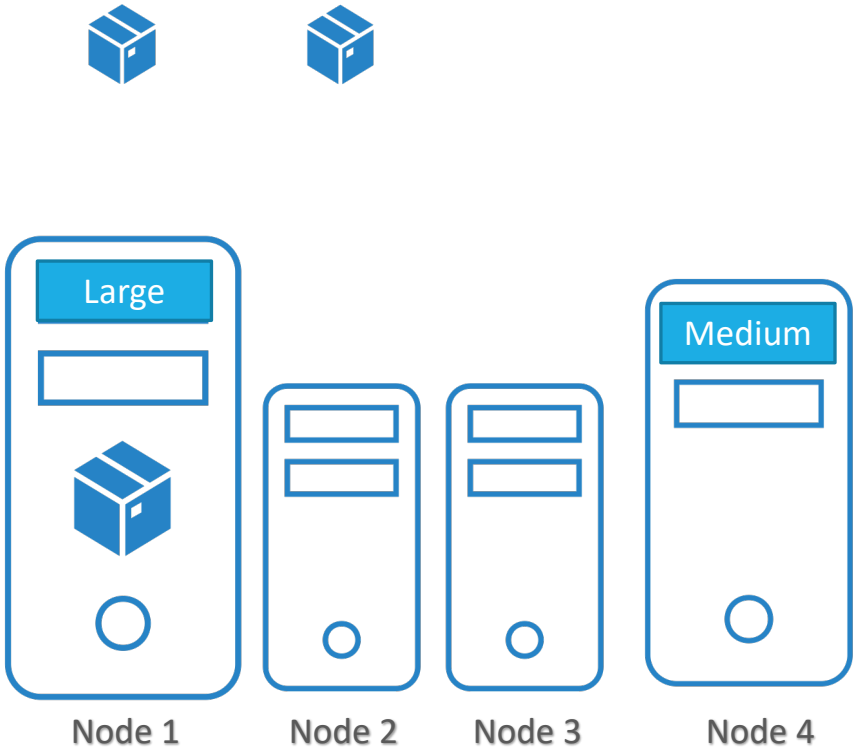
Label Nodes

```
kubectl label nodes <node-name> <label-key>=<label-value>
```

```
kubectl label nodes node-1 size=Large
```

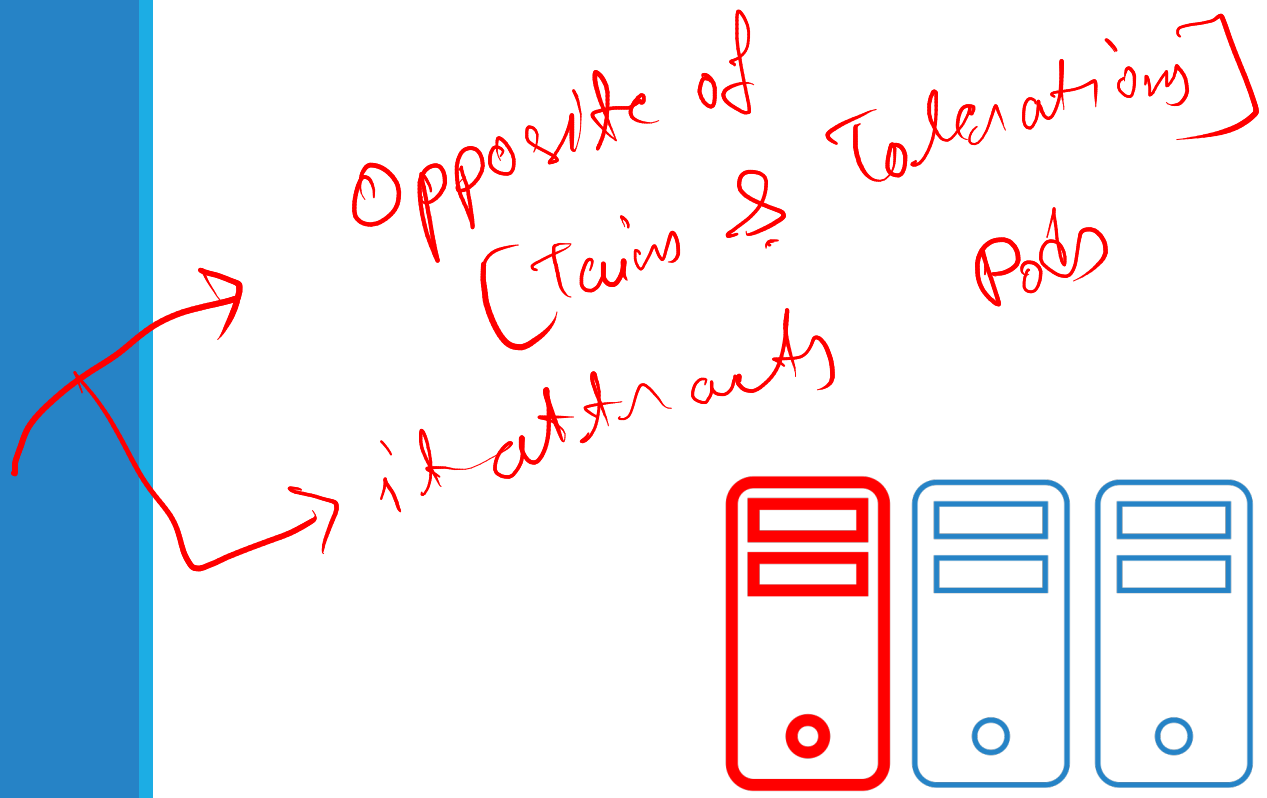


Node Selector - Limitations



- Large OR Medium?
- NOT Small

Node Affinity



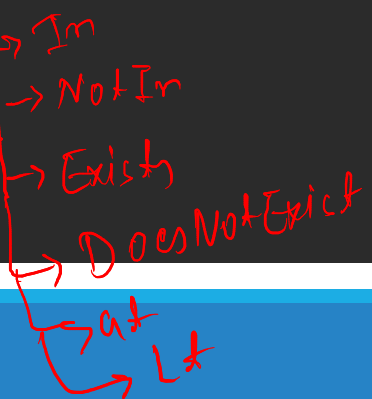
Node Affinity

pod-definition.yml

```
apiVersion:
kind: Pod

metadata:
 name: myapp-pod
spec:

  containers:
  - name: data-processor
    image: data-processor

  nodeSelector:
    size: Large
```

pod-definition.yml

```
apiVersion:
kind:

metadata:
 name: myapp-pod
spec:

 containers:
  - name: data-processor
    image: data-processor

 affinity:
  nodeAffinity:
    requiredDuringSchedulingIgnoredDuringExecution:
      nodeSelectorTerms:
      - matchExpressions:
        - key: size
          operator: In
          values:
          - Large
```



Node Affinity Types

Available:

requiredDuringSchedulingIgnoredDuringExecution → if not met, will not schedule

preferredDuringSchedulingIgnoredDuringExecution → if not met, still schedule

→ preferred
→ ignored
→ required

Planned:

requiredDuringSchedulingRequiredDuringExecution

Node Affinity Types

Available:

requiredDuringSchedulingIgnoredDuringExecution

preferredDuringSchedulingIgnoredDuringExecution

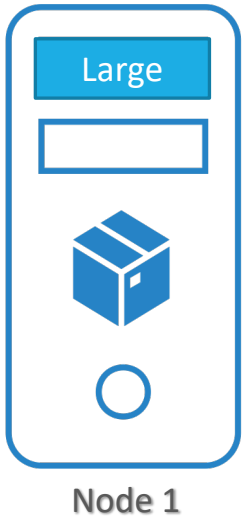
	DuringScheduling	DuringExecution
Type 1	Required	Ignored
Type 2	Preferred	Ignored

Node Affinity Types

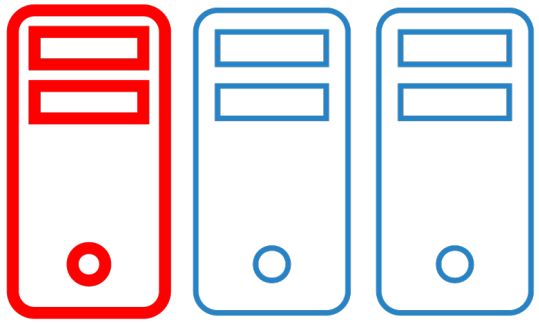
Planned:

requiredDuringSchedulingRequiredDuringExecution

	DuringScheduling	DuringExecution
Type 1	Required	Ignored
Type 2	Preferred	Ignored
Type 3	Required	Required

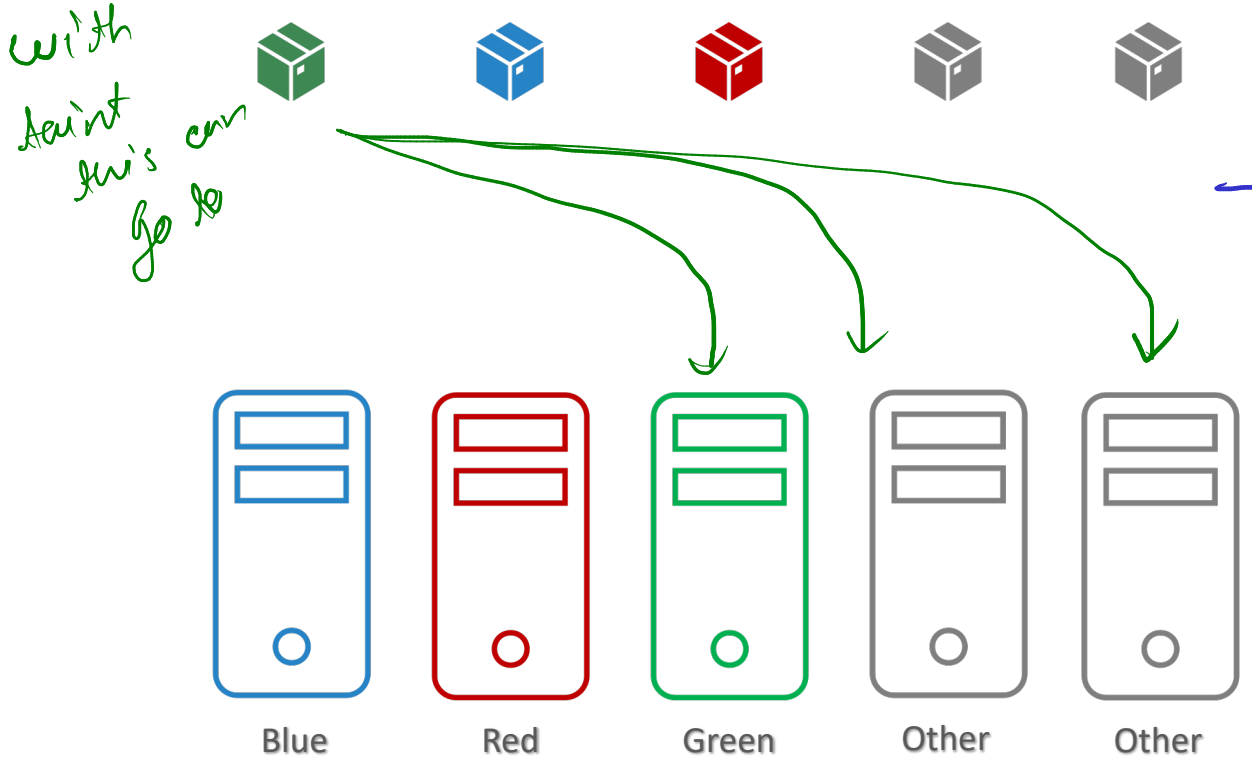


Node Affinity vs Taints and Tolerations



→ if there is no taint, with toleration pod can be scheduled on any pod

---



→ With Node affinity, we can select it must go to green / blue / red nodes,

↓

Together both can place the Pod in a selected node