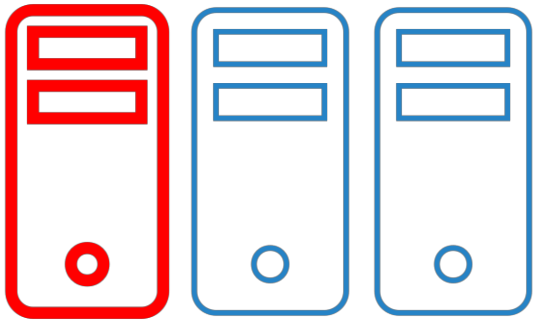
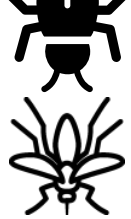
Taints And Tolerations

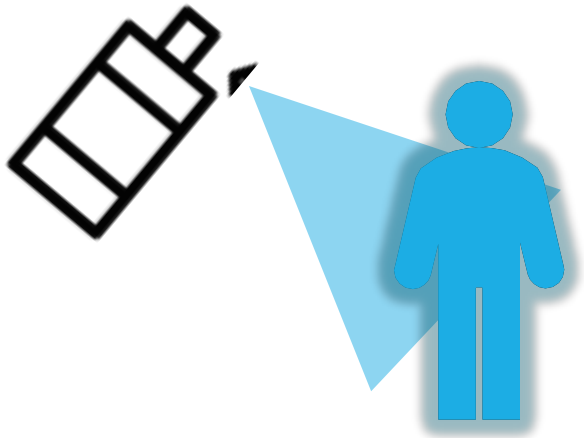




2

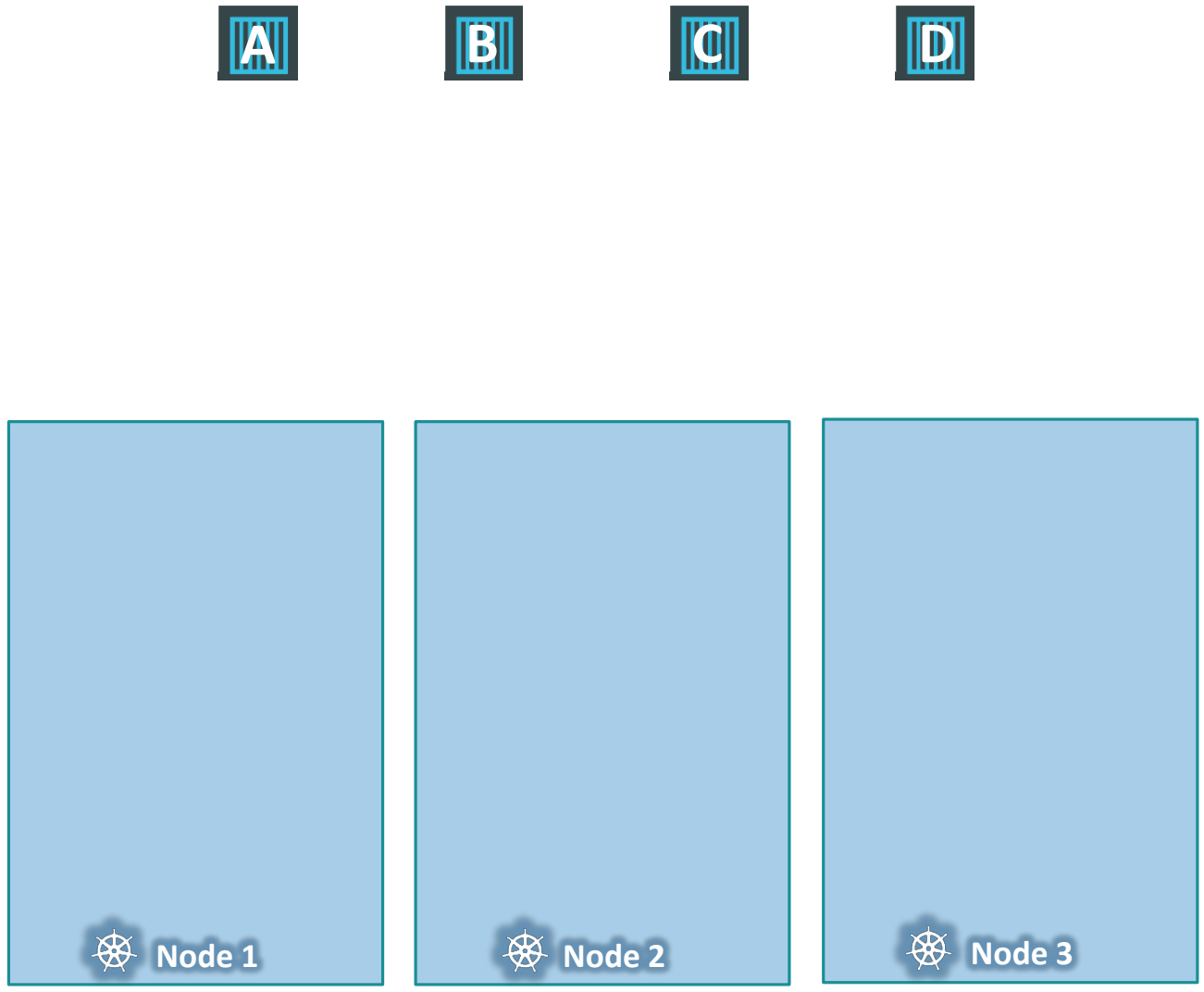
Intolerant

Tolerant

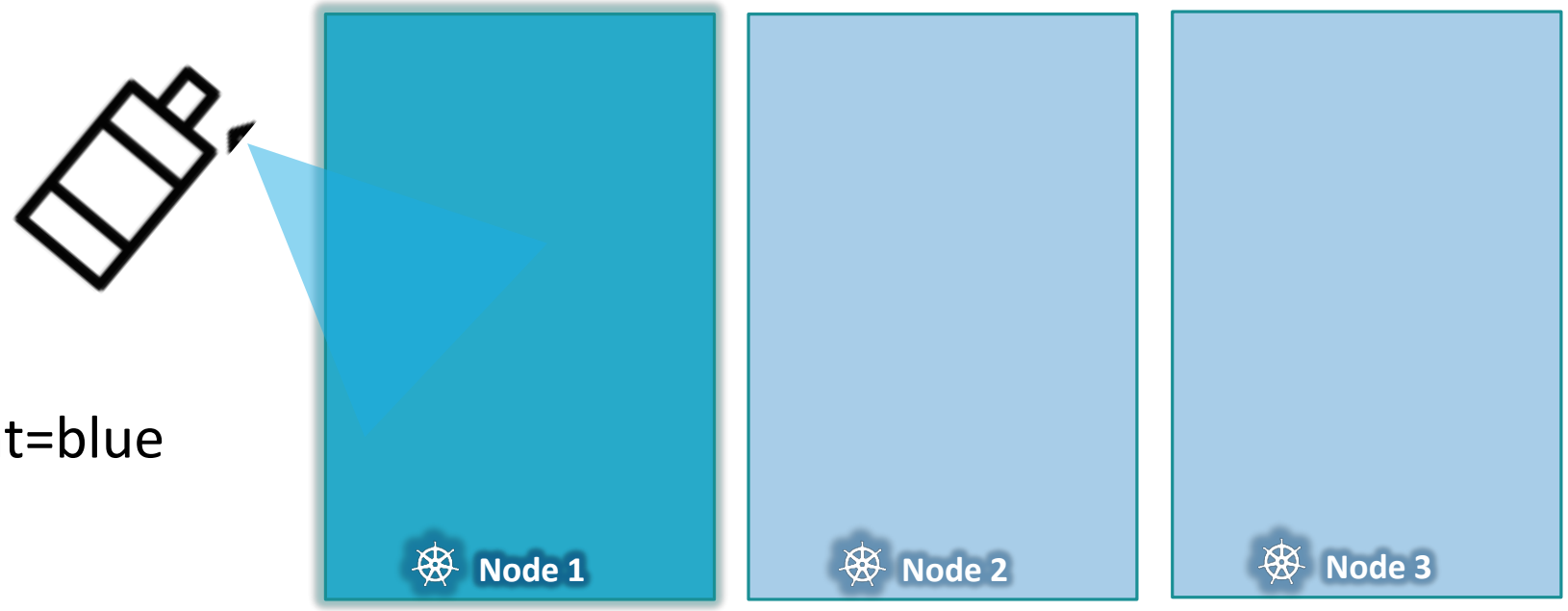


1

Taint



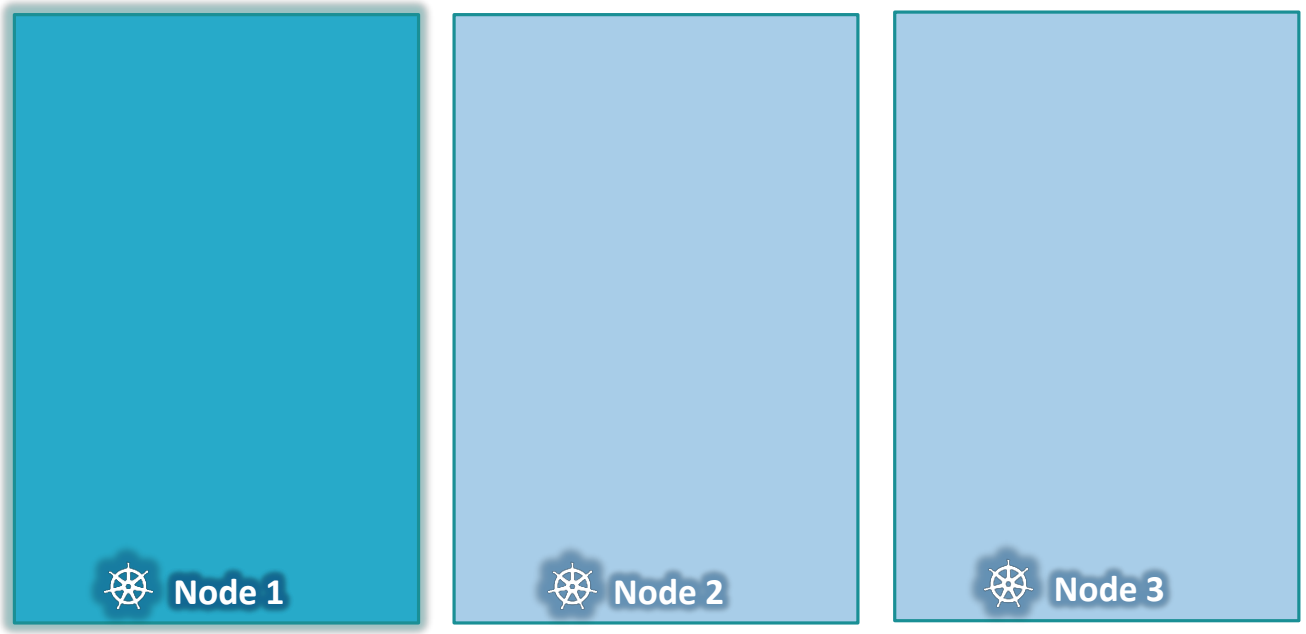
2



Taint=blue

1

Taint=blue



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
```

Tolerations - PODs

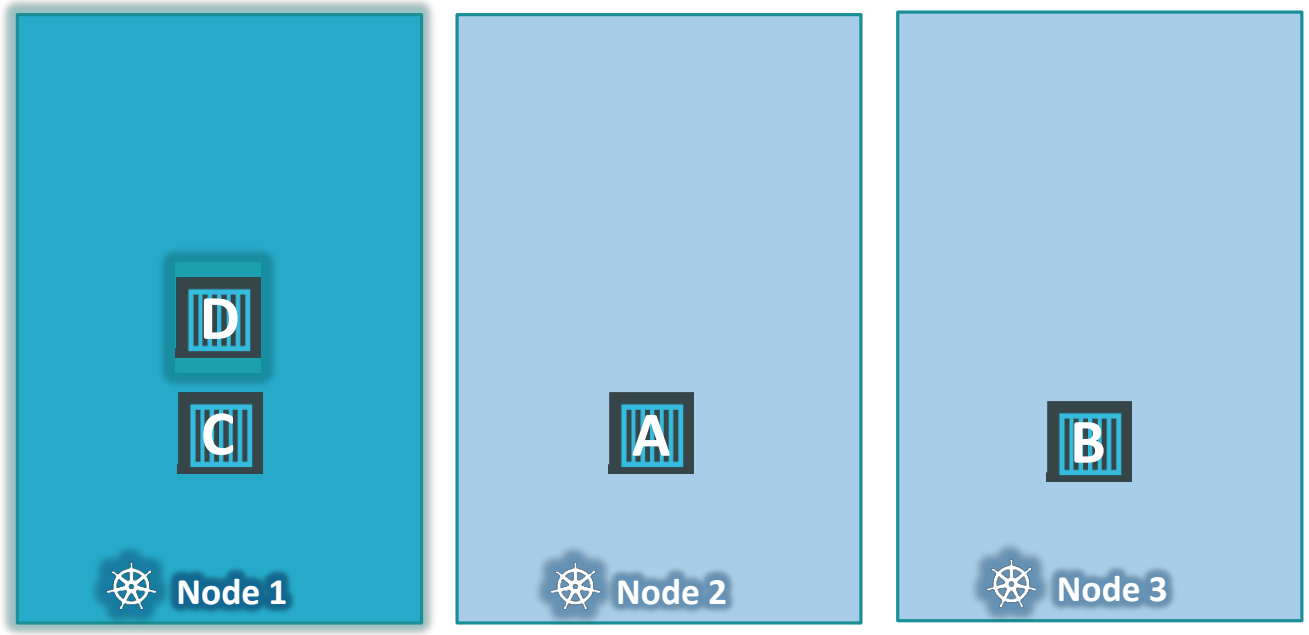
```
kubectl taint nodes node1 app=myapp:NoSchedule
```

pod-definition.yml

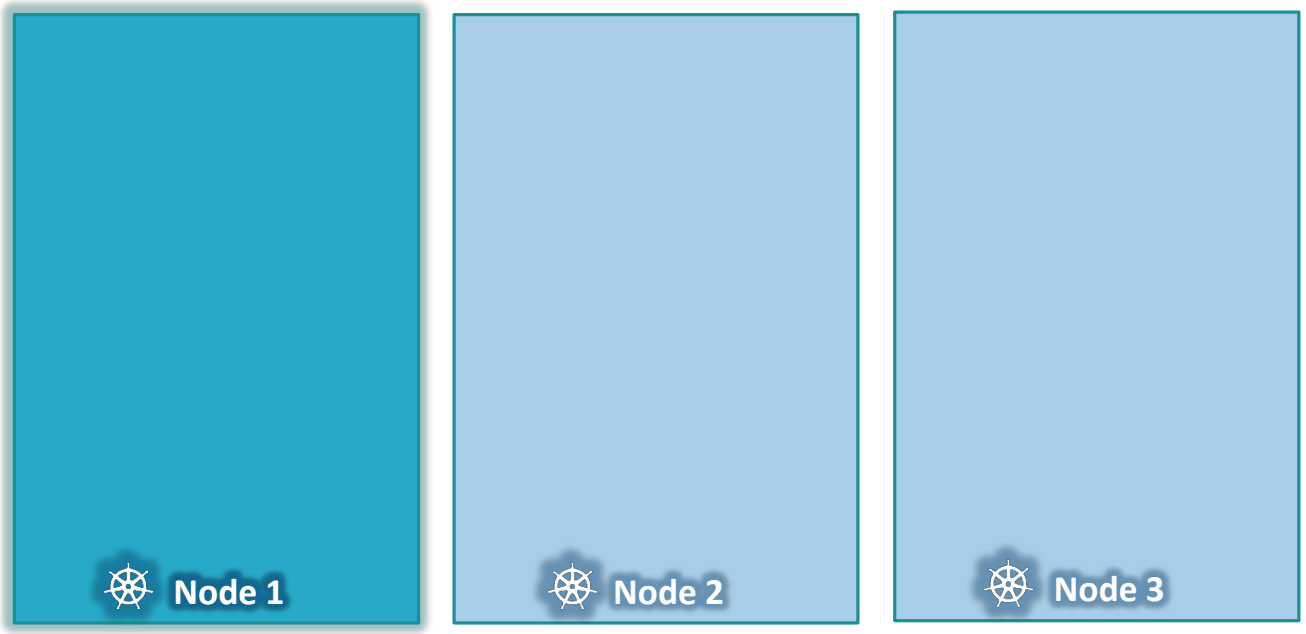
```
apiVersion:
kind: Pod
metadata:
 name: myapp-pod
spec:
  containers:
  - name: nginx-container
    image: nginx

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

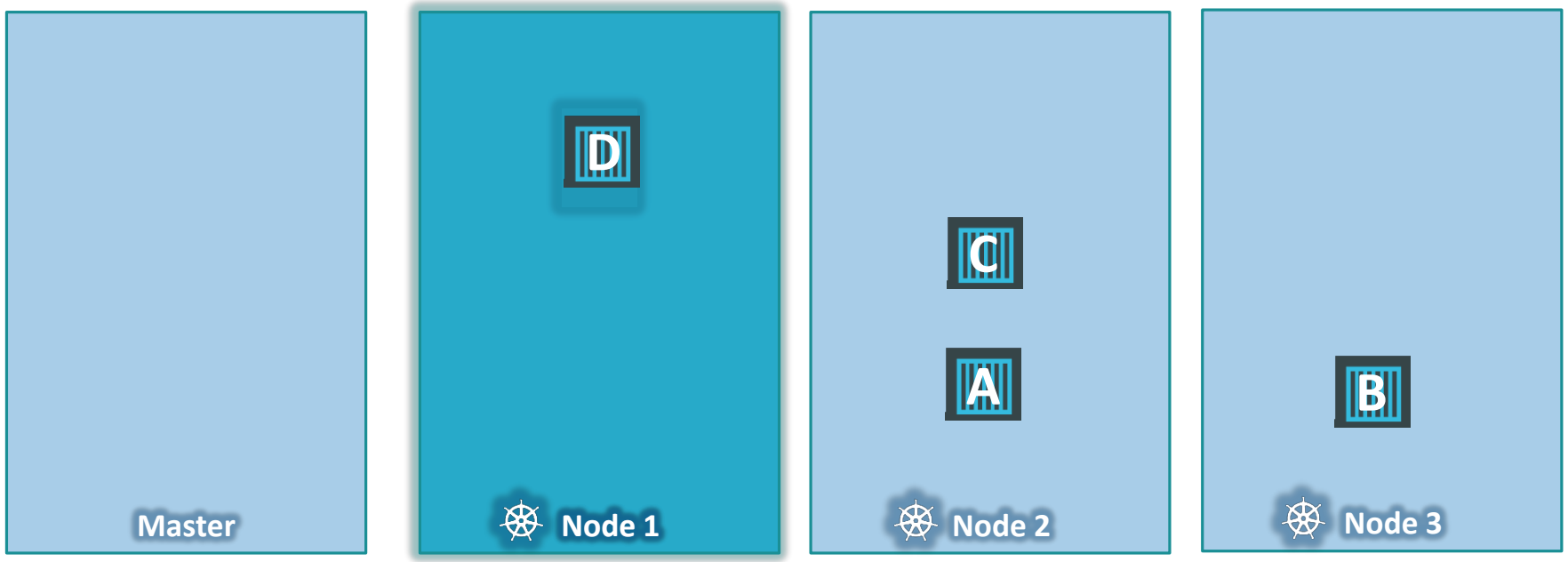
Taint - NoExecute



Taint=blue



```
kubectl describe node kubemaster | grep Taint
Taints:             node-role.kubernetes.io/master:NoSchedule
```



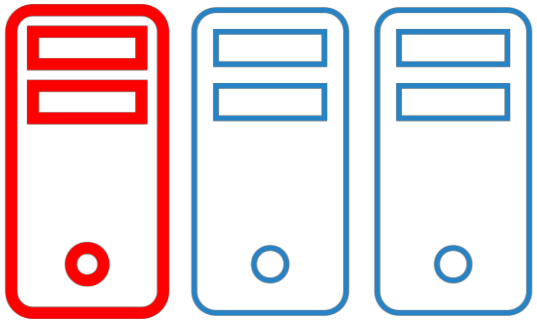
KODEKLOUD

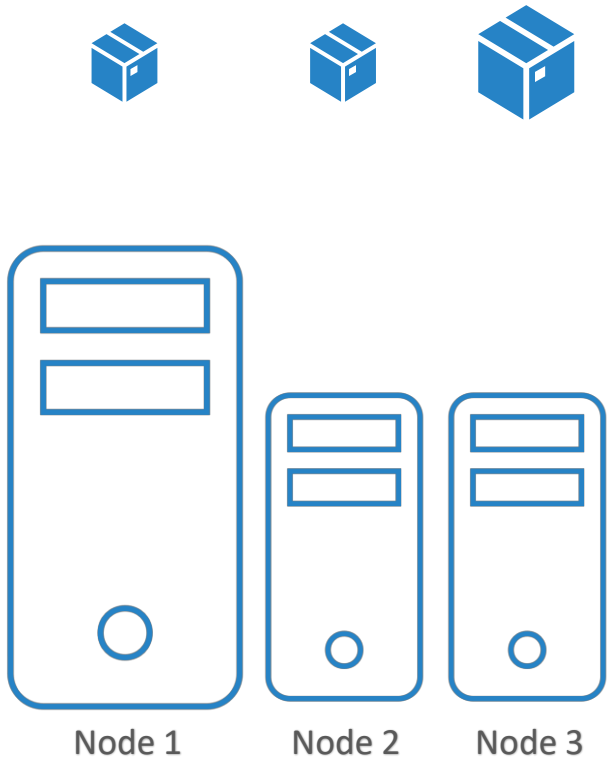
Demo

Taints and Tolerations


KODEKLOUD

Node Selectors



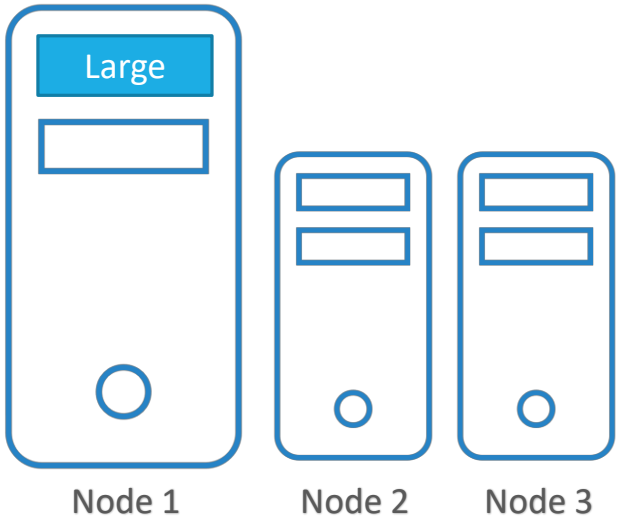


Node Selectors

pod-definition.yml

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

  nodeSelector:
    size: Large
```



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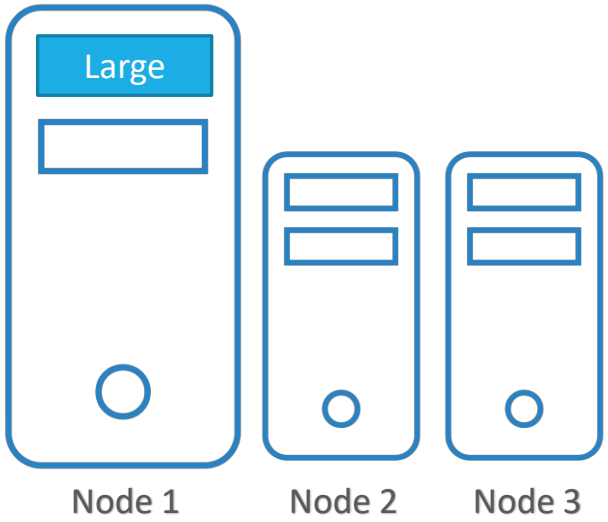
Label Nodes

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

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



Node Selector

pod-definition.yml

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

  nodeSelector:
    size: Large
```

```
kubectl create -f pod-definition.yml
```

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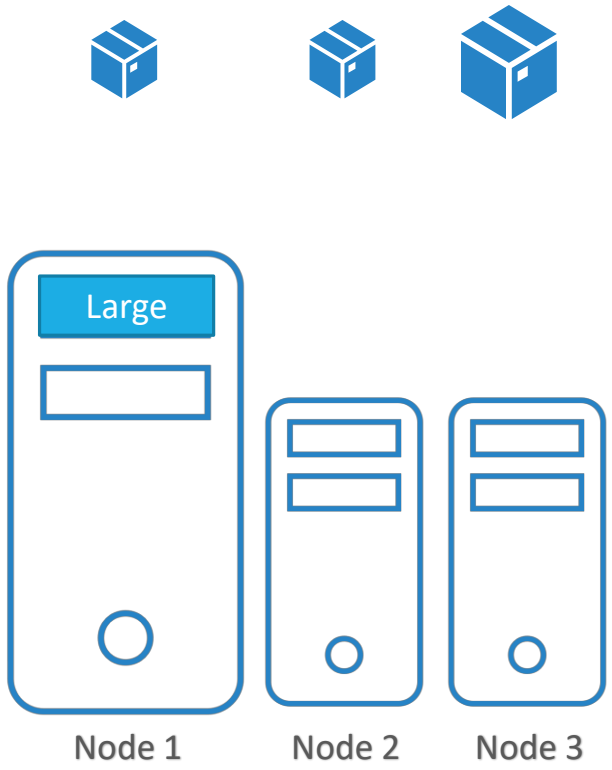
Node Selector



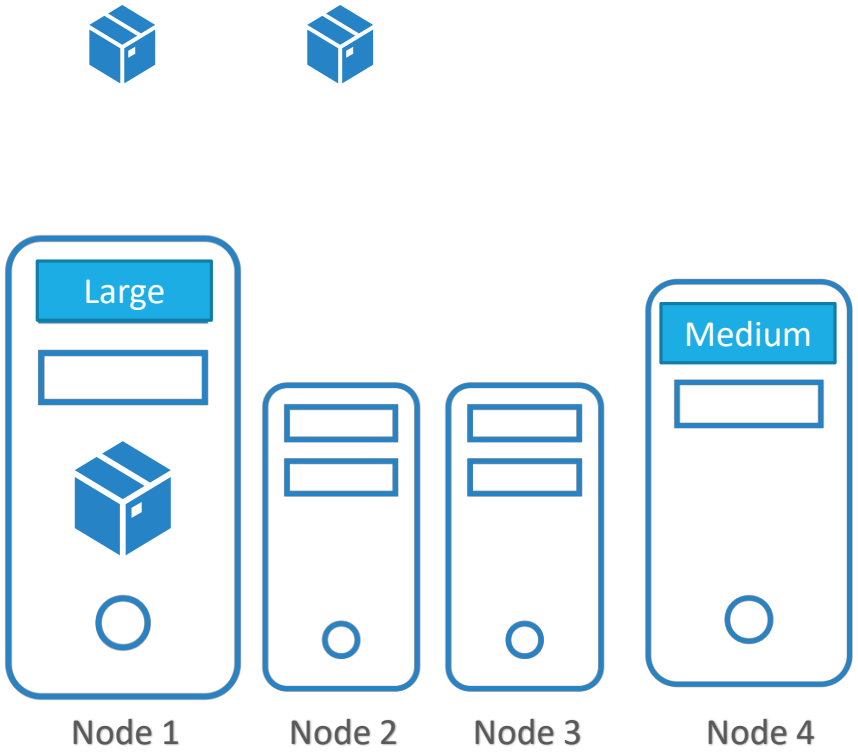
pod-definition.yml

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

  nodeSelector:
    size: Large
```

```
kubectl create -f pod-definition.yml
```

Node Selector - Limitations



- Large OR Medium?
- NOT Small

Demo

Taints and Tolerations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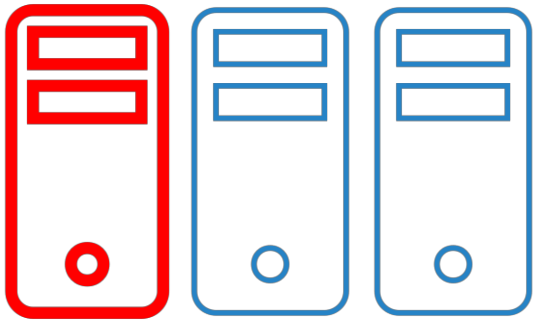
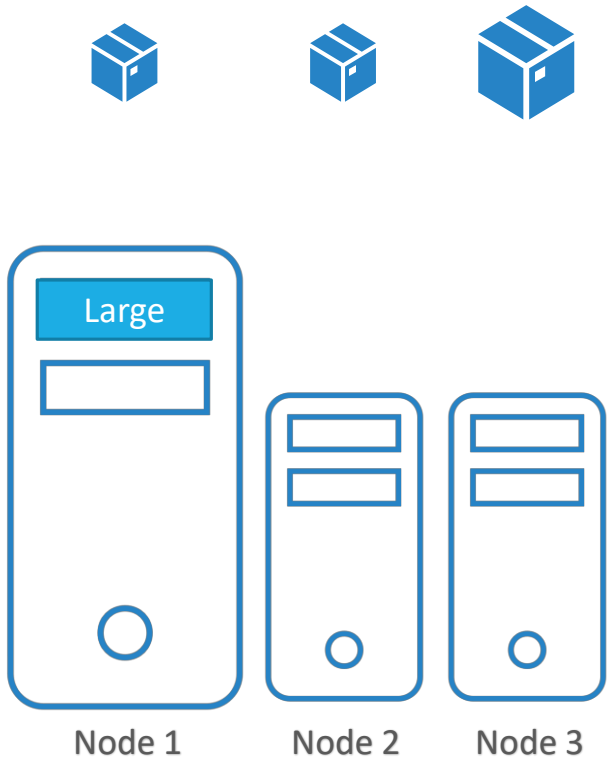
Node Affinity



PODs to Nodes



Node Selectors

pod-definition.yml

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

  nodeSelector:
    size: Large
```

- Large OR Medium?
- NOT Small

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
```

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Node Affinity

pod-definition.yml

```yaml
apiVersion:
kind:

metadata:
 name: myapp-pod
spec:

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

 affinity:
  nodeAffinity:
    requiredDuringSchedulingIgnoredDuringExecution:
      nodeSelectorTerms:
      - matchExpressions:

        - key: size
          operator: Exists
```

Node Affinity Types

Available:

`requiredDuringSchedulingIgnoredDuringExecution`

`preferredDuringSchedulingIgnoredDuringExecution`

Planned:

`requiredDuringSchedulingRequiredDuringExecution`

Node Affinity Types

Available:

requiredDuringSchedulingIgnoredDuringExecution

preferredDuringSchedulingIgnoredDuringExecution

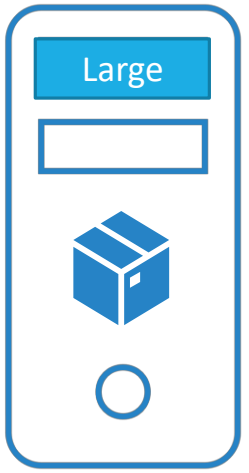
	DuringScheduling	DuringExecution
Type 1	Required	Ignored
Type 2	Preferred	Ignored

Node Affinity Types

Planned:

requiredDuringSchedulingRequiredDuringExecution

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



Node 1

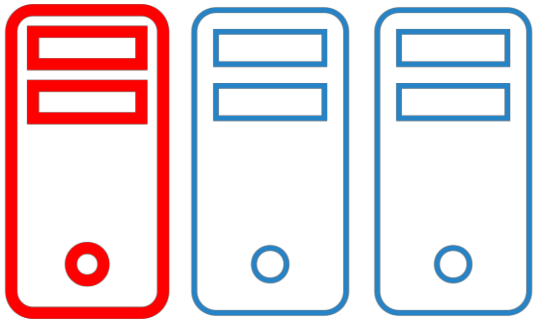
Demo

Taints and Tolerations

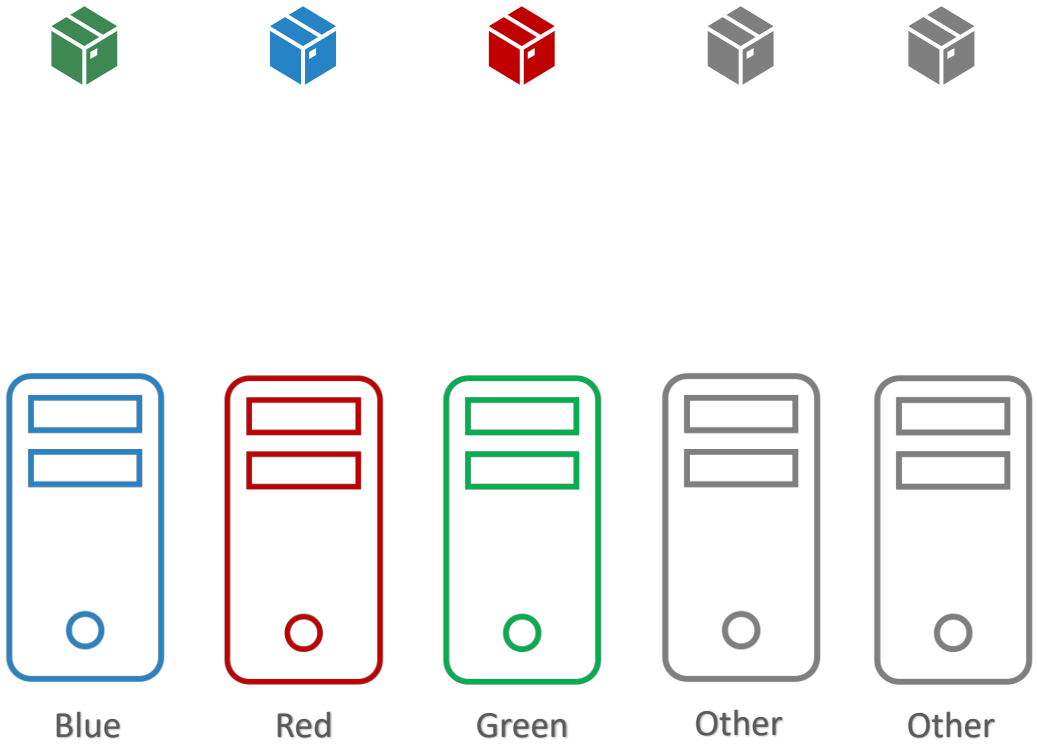
References

https://kubernetes.io/docs/concepts/configuration/assign-pod-node/

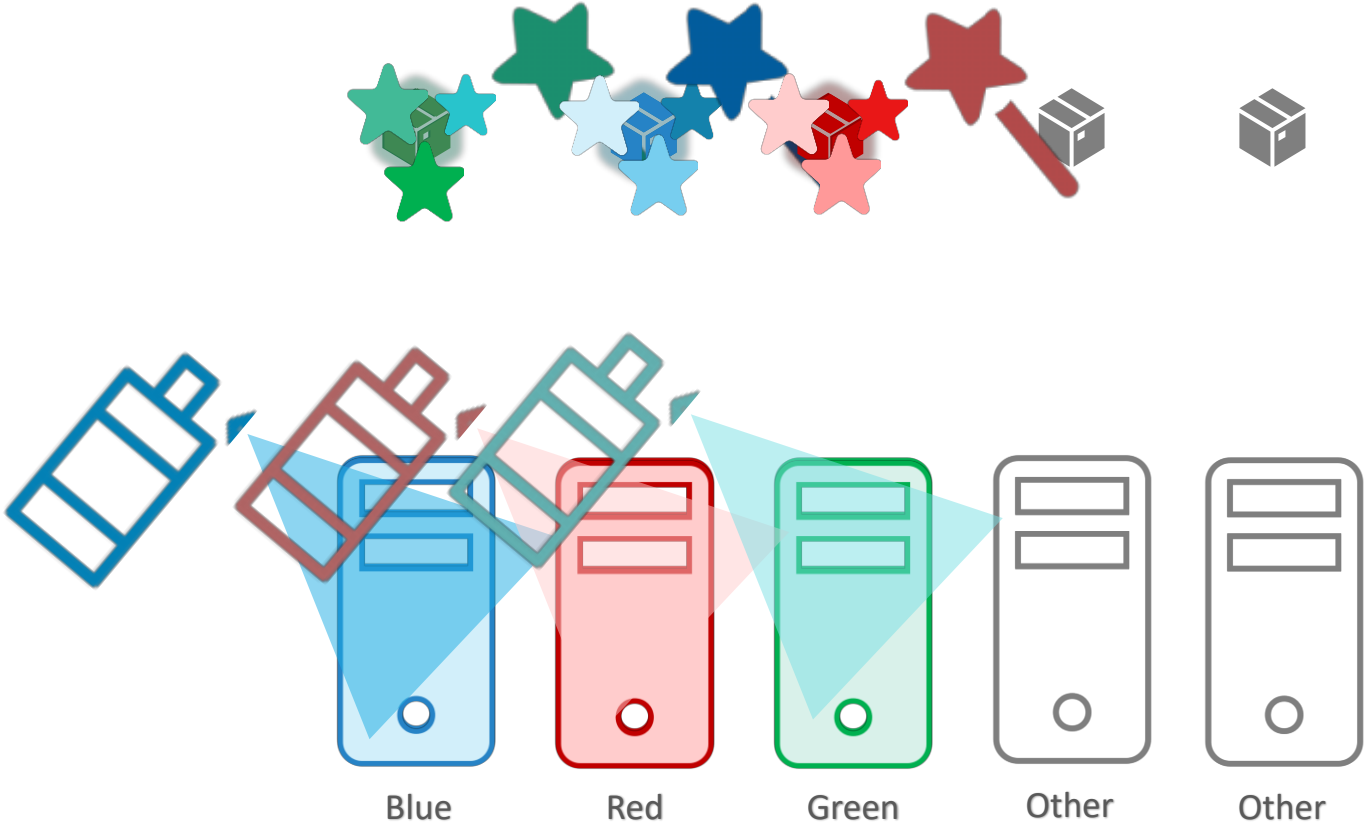
Node Affinity vs Taints and Tolerations



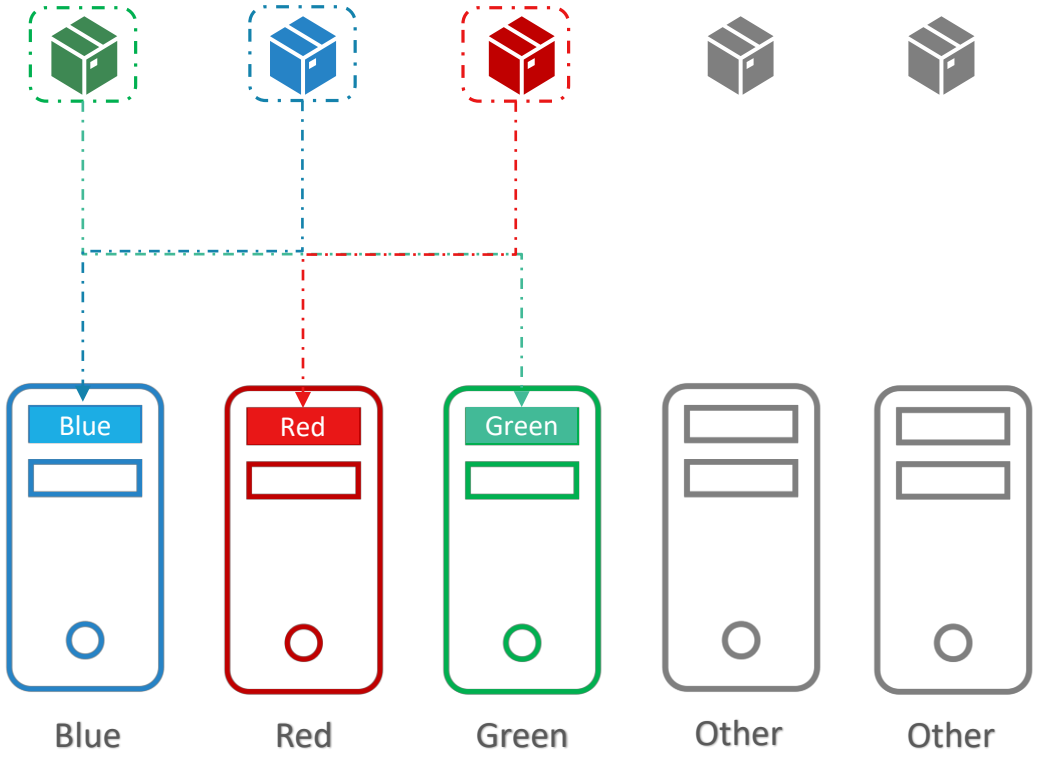

KODEKLOUD



Taints and Tolerations



Node Affinity



Taints/Tolerations and Node Affinity