그림으로 배우는 쿠버네티스 (Kubernetes)

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- CCIE DC, CKA&D, VCIX-NV6, RHCE, GCPx4

https://github.com/SysNet4Admin

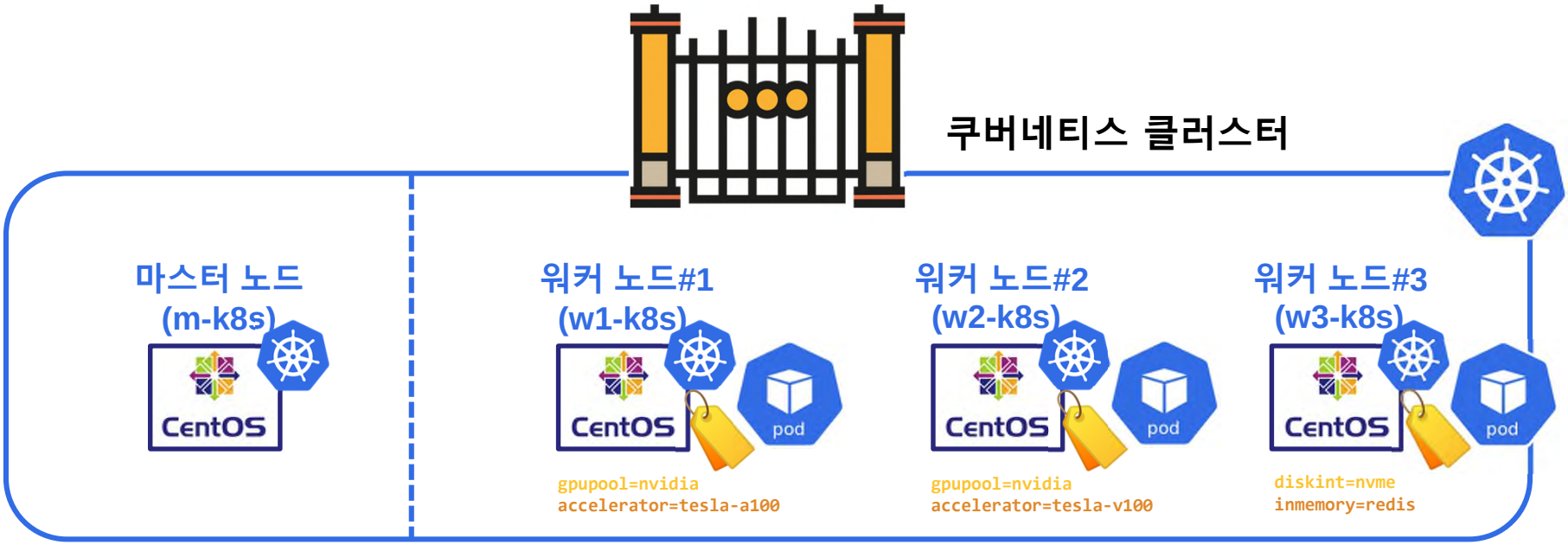
https://app.vagrantup.com/SysNet4Admin

kubernetes

지금도 파드는

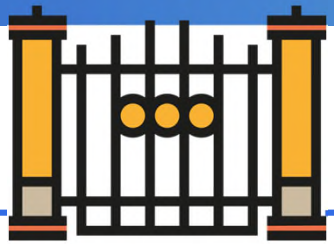
균등하게 배포되지 않나요?

노드 레이블에 따라 파드 배포



기준 파드의 레이블을 보고 파드 배포

전체 파드의 수를 보고 각 레이블 단위로 나누기



쿠버네티스 클러스터

A 구역

마스터 노드
(m-k8s)

워커 노드#1
(w1-k8s)

gpupool=nvidia
accelerator=tesla-a100

B 구역

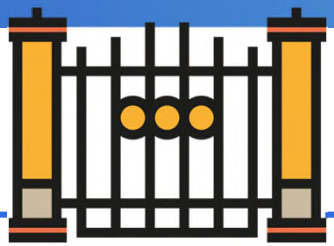
워커 노드#2
(w2-k8s)

gpupool=nvidia
accelerator=tesla-v100

워커 노드#3
(w3-k8s)

diskint=nvme
inmemory=redis

노드들의 구분을 위해서 레이블 추가



쿠버네티스 클러스터

topology.kubernetes.io/region=ap-northeast-2
topology.kubernetes.io/zone=ap-northeast-2a

워커 노드#1
(w1-k8s)

CentOS

topology.kubernetes.io/region=ap-northeast-2
topology.kubernetes.io/zone=ap-northeast-2a

워커 노드#2
(w2-k8s)

CentOS

topology.kubernetes.io/region=ap-northeast-2
topology.kubernetes.io/zone=ap-northeast-2a

워커 노드#3
(w3-k8s)

CentOS

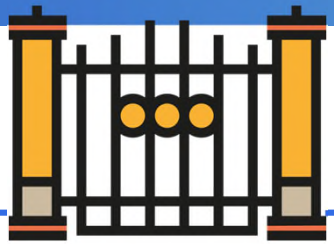
topology.kubernetes.io/region=ap-northeast-2
topology.kubernetes.io/zone=ap-northeast-2b

워커 노드#4
(w4-k8s)

CentOS

topology.kubernetes.io/region=ap-northeast-2
topology.kubernetes.io/zone=ap-northeast-2b

구분된 노드에 따라 파드가 배포됨



쿠버네티스 클러스터

topology.kubernetes.io/region=ap-northeast-2

topology.kubernetes.io/zone=ap-northeast-2a

워커 노드#1
(w1-k8s)

topology.kubernetes.io/region=ap-northeast-2
topology.kubernetes.io/zone=ap-northeast-2a

워커 노드#2
(w2-k8s)

topology.kubernetes.io/region=ap-northeast-2
topology.kubernetes.io/zone=ap-northeast-2a

topology.kubernetes.io/zone=ap-northeast-2b

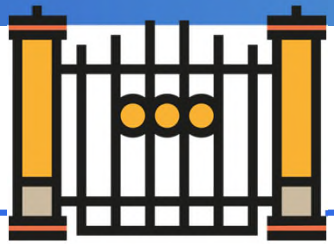
워커 노드#3
(w3-k8s)

topology.kubernetes.io/region=ap-northeast-2
topology.kubernetes.io/zone=ap-northeast-2b

워커 노드#4
(w4-k8s)

topology.kubernetes.io/region=ap-northeast-2
topology.kubernetes.io/zone=ap-northeast-2b

만약 워커 노드#3에 부하가 많다면?



쿠버네티스 클러스터

topology.kubernetes.io/region=ap-northeast-2

topology.kubernetes.io/zone=ap-northeast-2a

워커 노드#1
(w1-k8s)

topology.kubernetes.io/region=ap-northeast-2
topology.kubernetes.io/zone=ap-northeast-2a

워커 노드#2
(w2-k8s)

topology.kubernetes.io/region=ap-northeast-2
topology.kubernetes.io/zone=ap-northeast-2a

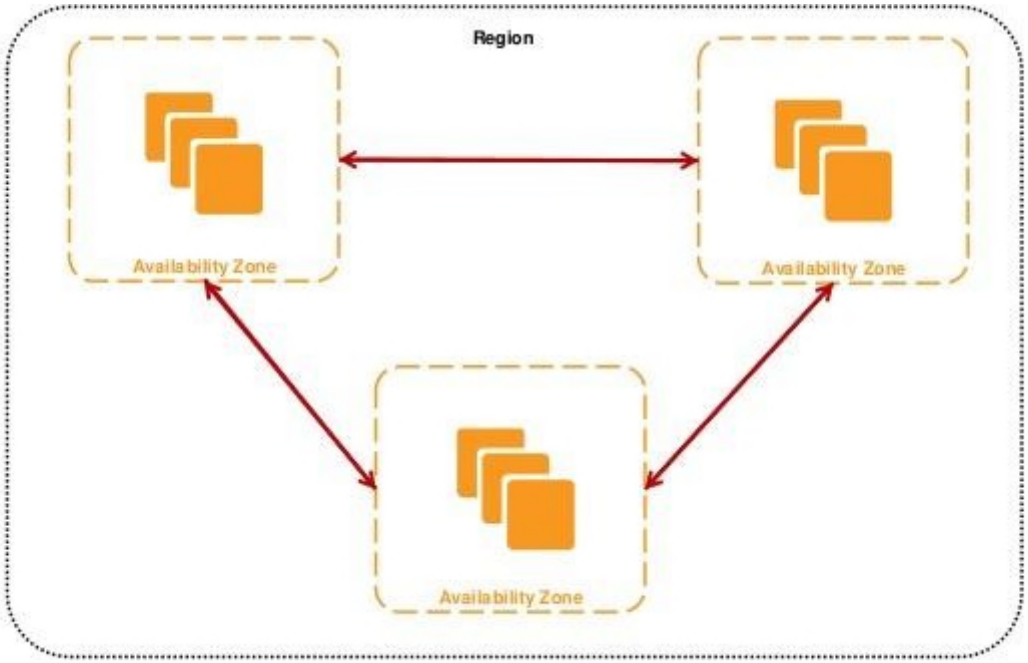
topology.kubernetes.io/zone=ap-northeast-2b

topology.kubernetes.io/region=ap-northeast-2
topology.kubernetes.io/zone=ap-northeast-2b

워커 노드#4
(w4-k8s)

topology.kubernetes.io/region=ap-northeast-2
topology.kubernetes.io/zone=ap-northeast-2b

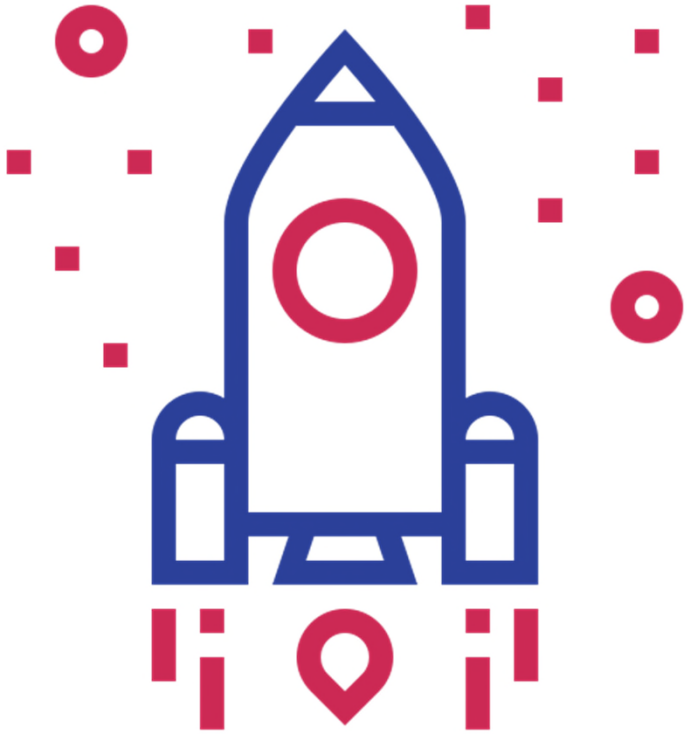
Cloud AZ(Availability Zones / 가용 영역)



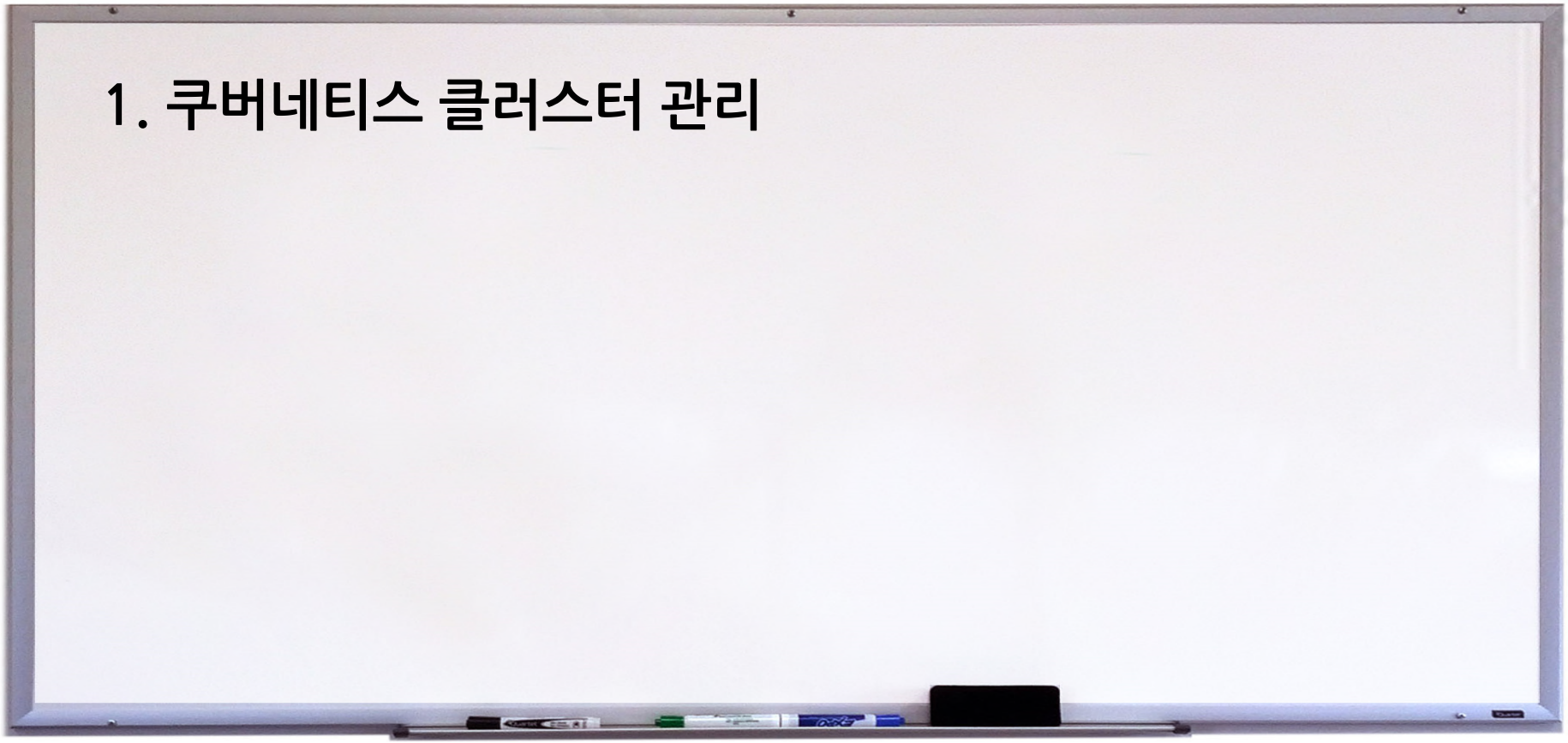
deploy-topologyspreadconstraints.yaml

```yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  labels:
    app: deploy-topologyspreadconstraints
  name: deploy-topologyspreadconstraints
spec:
  replicas: 4
  selector:
    matchLabels:
      app: deploy-topologyspreadconstraints
  template:
    metadata:
      labels:
        app: deploy-topologyspreadconstraints
    spec:
      containers:
      - image: nginx
        name: nginx
      topologySpreadConstraints:
      - maxSkew: 1
        topologyKey: topology.kubernetes.io/region
        whenUnsatisfiable: DoNotSchedule
        labelSelector:
          matchLabels:
            app: deploy-topologyspreadconstraints
      - maxSkew: 1
        topologyKey: topology.kubernetes.io/zone
        whenUnsatisfiable: DoNotSchedule
        labelSelector:
          matchLabels:
            app: deploy-topologyspreadconstraints
```

토폴로지 분배 제약 조건 동작 확인



다음 강좌에는...



kubernetes