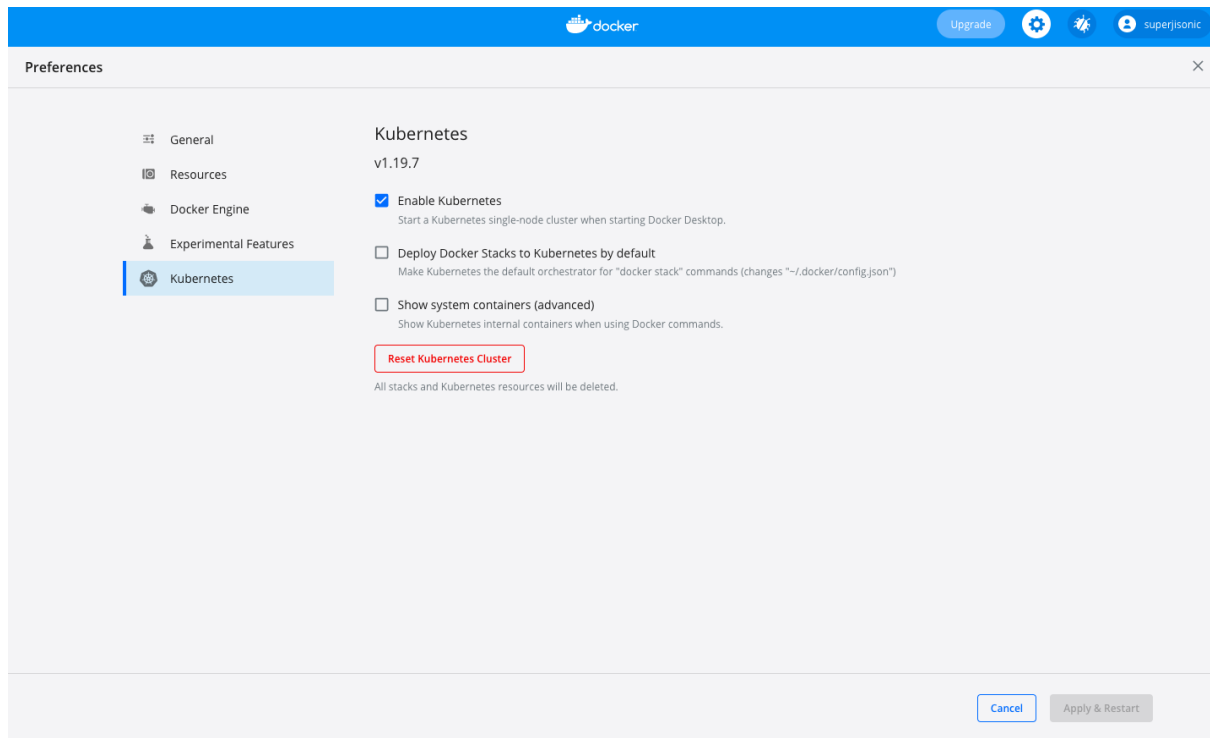


2.2 쿠버네티스 클러스터 설치

🕒 생성일	@2021년 3월 12일 오전 12:52
☰ 태그	

쿠버네티스를 먼저 설치한다



Docker Desktop의 Preference에 들어가서 enable kubernetes 체크하면 손쉽게 다운 된다

1. Minikube를 활용한 단일 노드 쿠버네티스 클러스터 실행하기

Minikube 도구: 완전하게 동작하는 쿠버네티스를 가장 간단하고 빠르게 접근하는 방법

- 로컬에서 쿠버네티스 테스트 및 개발 하는 목적으로 단일 노드 클러스터를 설치하는 도구

Minikube 설치

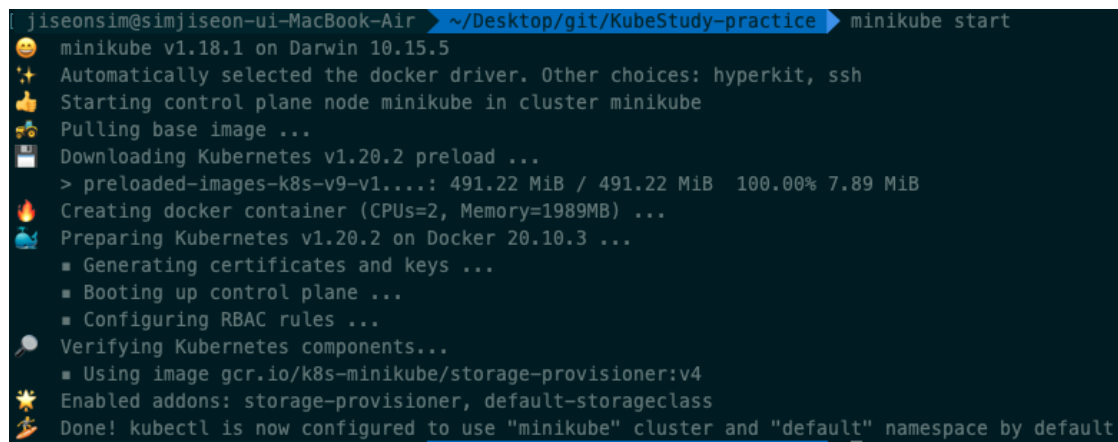
<https://minikube.sigs.k8s.io/docs/start/> 참고..

```
brew install minikube
which minikube
```

쿠버네티스 클라이언트인 kubectl까지 다운된다

Minikube로 쿠버네티스 클러스터 시작

```
minikube start
```



```
jiseonsim@simjiseon-ui-MacBook-Air ~/Desktop/git/KubeStudy-practice$ minikube start
minikube v1.18.1 on Darwin 10.15.5
Automatically selected the docker driver. Other choices: hyperkit, ssh
Starting control plane node minikube in cluster minikube
Pulling base image ...
Downloading Kubernetes v1.20.2 preload ...
> preloaded-images-k8s-v9-v1....: 491.22 MiB / 491.22 MiB 100.00% 7.89 MiB
Creating docker container (CPUs=2, Memory=1989MB) ...
Preparing Kubernetes v1.20.2 on Docker 20.10.3 ...
  ▪ Generating certificates and keys ...
  ▪ Booting up control plane ...
  ▪ Configuring RBAC rules ...
Verifying Kubernetes components...
  ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v4
Enabled addons: storage-provisioner, default-storageclass
Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
```

클러스터 작동 여부 확인 (kubectl로)

```
kubectl cluster-info
```

그리고 minikube ssh로 Minikube 가상머신에 로그인해서 내부를 살펴볼 수 있음

2. 구글 쿠버네티스 엔진을 활용한 관리형 쿠버네티스 클러스터 사용하기

GKE(관리형 구글 쿠버네티스 엔진)

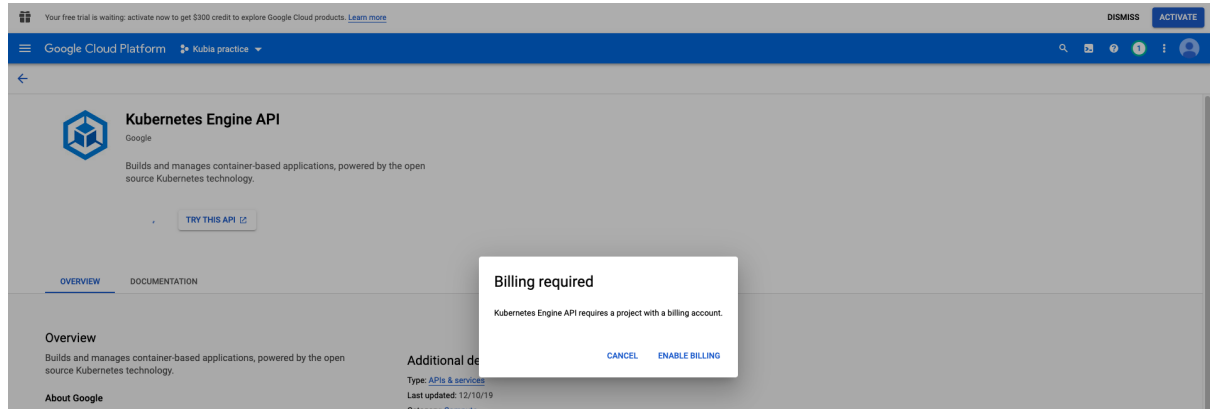
- 완전한 다중 노드 쿠버네티스 클러스터를 살펴볼 수 있다
- 모든 클러스터 노드와 네트워킹을 수동으로 설정할 필요 없음
- 클러스터 잘못설정해서 동작하거나 부분적으로 동작하는 경우 없을것..

GCP 설정과 필요한 클라이언트 바이너리 다운

GKE 환경 설정

<https://cloud.google.com/kubernetes-engine/docs/quickstart>

프로젝트 생성후 API를 enable 시킨다



빌링 활성화.. 책에서는 1년이랬는데 여기보니 90일동안만 무료란다..

구글클라우드 sdk 설치

<https://cloud.google.com/sdk/docs/downloads-interactive?hl=ko> 참고

```
curl https://sdk.cloud.google.com | bash
```

```
jiseonsim@simjiseon-u1-MacBook-Air ~/Desktop/git/KubeStudy-practice$ curl https://sdk.cloud.google.com | bash
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload  Total   Spent    Left   Speed
100 443 100 443    0     0 1276      0 --:--:-- --:--:-- --:--:-- 1276
Downloading Google Cloud SDK install script: https://dl.google.com/dl/cloudsdk/channels/rapid/install_google_cloud_sdk.bash
##### 100.0%
Running install script from: /var/folders/vq/jt2xq9jx091c7nd71qlm00x40000gn/T/tmp.XXXXXXXXXX.0fdtMXCQ/install_google_cloud_sdk.bas
which curl
curl -# -f https://dl.google.com/dl/cloudsdk/channels/rapid/google-cloud-sdk.tar.gz
#####
Installation directory (this will create a google-cloud-sdk subdirectory) (/Users/jiseonsim):
mkdir -p /Users/jiseonsim
tar -C /Users/jiseonsim -zxvf /var/folders/vq/jt2xq9jx091c7nd71qlm00x40000gn/T/tmp.XXXXXXXXXX.YJnun8qL/google-cloud-sdk.tar.gz
x google-cloud-sdk/.install/download/
x google-cloud-sdk/.install/core.manifest
x google-cloud-sdk/.install/core.snapshot.json
x google-cloud-sdk/.install/gcloud-deps.manifest
x google-cloud-sdk/.install/gcloud-deps.snapshot.json
x google-cloud-sdk/LICENSE
```

/Users/사용자이름 : 에서엔터 한번 치면 주르륵 다운된다

```

/Users/jiseonsim/google-cloud-sdk/install.sh
Welcome to the Google Cloud SDK!

To help improve the quality of this product, we collect anonymized usage data
and anonymized stacktraces when crashes are encountered; additional information
is available at <https://cloud.google.com/sdk/usage-statistics>. This data is
handled in accordance with our privacy policy
<https://cloud.google.com/terms/cloud-privacy-notice>. You may choose to opt in this
collection now (by choosing 'Y' at the below prompt), or at any time in the
future by running the following command:

    gcloud config set disable_usage_reporting false

Do you want to help improve the Google Cloud SDK (y/N)?  N

```

이미 내 정보는 다 털렸겠지만 그래도 구글에 정보주기 싫으니까 동의하지 않았다

kubectl 명령행 도구 설치

```

gcloud components install kubectl
gcloud init //애도 해줘야 zone, region 설정이 완료됨

```

```

✖ jiseonsim@simjiseon-ui-MacBook-Air ~$ gcloud components install kubectl

Your current Cloud SDK version is: 331.0.0
Installing components from version: 331.0.0

These components will be installed.


| Name    | Version | Size     |
|---------|---------|----------|
| kubectl | 1.17.17 | 77.8 MiB |
| kubectl | 1.17.17 | < 1 MiB  |



For the latest full release notes, please visit:
https://cloud.google.com/sdk/release_notes

Do you want to continue (Y/n)?  Y

Creating update staging area

```

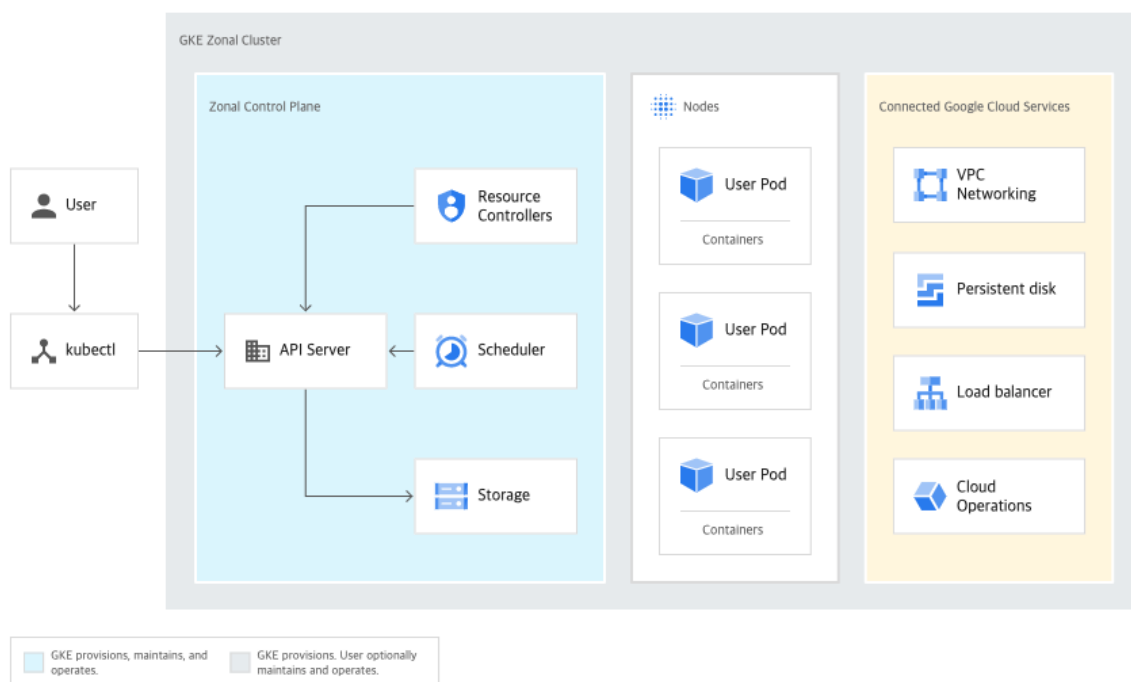
쿠버네티스 클러스터 생성

워커노드 3개를 가진 쿠버네티스 클러스터를 생성

```
gcloud container clusters create kubia --num-nodes 3
```

```
john@johns-macbook-air:~$ gcloud container clusters create kubia --num-nodes 3
WARNING: Starting in January 2021, clusters will use the Regular release channel by default when '--cluster-version', '--release-channel', '--no-enable-autoupgrade', and '--no-enable-autorepair' flags are not specified.
WARNING: Currently VPC-native is not the default mode during cluster creation. In the future, this will become the default mode and can be disabled using '--no-enable-ip-alias' flag. Use '--no-enable-ip-alias' flag to suppress this warning.
WARNING: Starting with version 1.18, clusters will have shielded GKE nodes by default.
WARNING: Your Pod address range ('--cluster-ipv4-cidr') can accommodate at most 1000 nodes(s).
WARNING: Starting with version 1.19, newly created clusters and node-pools will have COS_CONTAINERD as the default node image when no image type is specified.
Creating cluster kubia in asia-east1-b... Cluster is being health-checked (master is healthy)...done.
Created [https://container.googleapis.com/v1/projects/kubestudy-kubia-307318/zones/asia-east1-b/clusters/kubia].
To inspect the contents of your cluster, go to: https://console.cloud.google.com/kubernetes/workload/gcloud/asia-east1-b/kubia?project=kubestudy-kubia-307318
kubeconfig entry generated for kubia.
NAME      LOCATION  MASTER_VERSION  MASTER_IP      MACHINE_TYPE  NODE_VERSION    NUM_NODES  STATUS
kubia     asia-east1-b  1.18.12-gke.1210  104.196.250.70  c2-medium    1.18.12-gke.1210  3          RUNNING
```

클러스터의 개념 이해하기



각 워커노드는 Pod안의 도커, Kublet, kube-proxy를 실행한다

- kubectl 클라이언트 명령어는 마스터 노드에서 Kubernetes API 서버로 REST 요청을 보내 클러스터와 상호작용한다

클러스터 노드를 조회해 클러스터 동작 상태 확인하기

```
kubectl get nodes
gcloud compute ssh <node-name>
```

```
jiseonsim@simjiseon-ui-MacBook-Air ~$ kubectl get nodes
NAME                                STATUS    ROLES    AGE   VERSION
gke-kubia-default-pool-378e3d66-f4rr Ready    <none>   14m   v1.18.12-gke.1210
gke-kubia-default-pool-378e3d66-fgr7 Ready    <none>   14m   v1.18.12-gke.1210
gke-kubia-default-pool-378e3d66-q5gx Ready    <none>   14m   v1.18.12-gke.1210
```

오브젝트 세부 정보 가져오기

```
kubectl describe node <node-name>
```

```
jiseonsim@simjiseon-ui-MacBook-Air ~$ kubectl describe node
Name:                                gke-kubia-default-pool-378e3d66-f4rr
Roles:                               <none>
Labels:                              beta.kubernetes.io/arch=amd64
                                      beta.kubernetes.io/instance-type=e2-medium
                                      beta.kubernetes.io/os=linux
                                      cloud.google.com/gke-boot-disk=pd-standard
                                      cloud.google.com/gke-nodepool=default-pool
                                      cloud.google.com/gke-os-distribution=cos
                                      cloud.google.com/machine-family=e2
                                      failure-domain.beta.kubernetes.io/region=asia-east1
                                      failure-domain.beta.kubernetes.io/zone=asia-east1-b
                                      kubernetes.io/arch=amd64
                                      kubernetes.io/hostname=gke-kubia-default-pool-378e3d66-f4rr
                                      kubernetes.io/os=linux
                                      node.kubernetes.io/instance-type=e2-medium
                                      topology.gke.io/zone=asia-east1-b
                                      topology.kubernetes.io/region=asia-east1
                                      topology.kubernetes.io/zone=asia-east1-b
Annotations:                         container.googleapis.com/instance_id: 2338114537685243588
                                      csi.volume.kubernetes.io/nodeid:
                                        {"pd.csi.storage.gke.io":"projects/kubestudy-kubia-307318/zon
                                      node.alpha.kubernetes.io/ttl: 0
                                      node.gke.io/last-applied-node-labels:
                                        cloud.google.com/gke-boot-disk=pd-standard,cloud.google.com/g
                                      volumes.kubernetes.io/controller-managed-attach-detach: true
CreationTimestamp:                  Fri, 12 Mar 2021 04:00:03 +0900
Taints:                             <none>
Unschedulable:                     false
```

- CPU, 메모리, 시스템 정보, 노드에 실행 중인 컨테이너 등을 포함한 노드 상태 보여줌

2. kubectl의 alias와 명령줄 자동완성 설정

~/.bashrc나 ~/.zshrc 에 추가하면 되지만 나는 굳이..alias 추가 안했다

```
alias k=kubectl
```

kubectl 탭 완성 설정하기

bash-completion 패키지 설치 (brew install 사용)

이후

```
source <(kubectl completion bash)
```