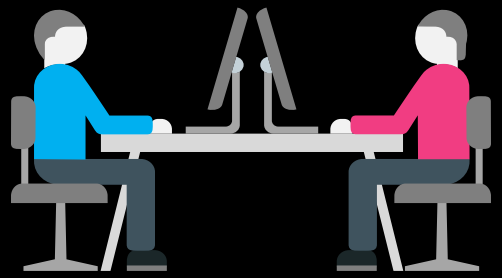
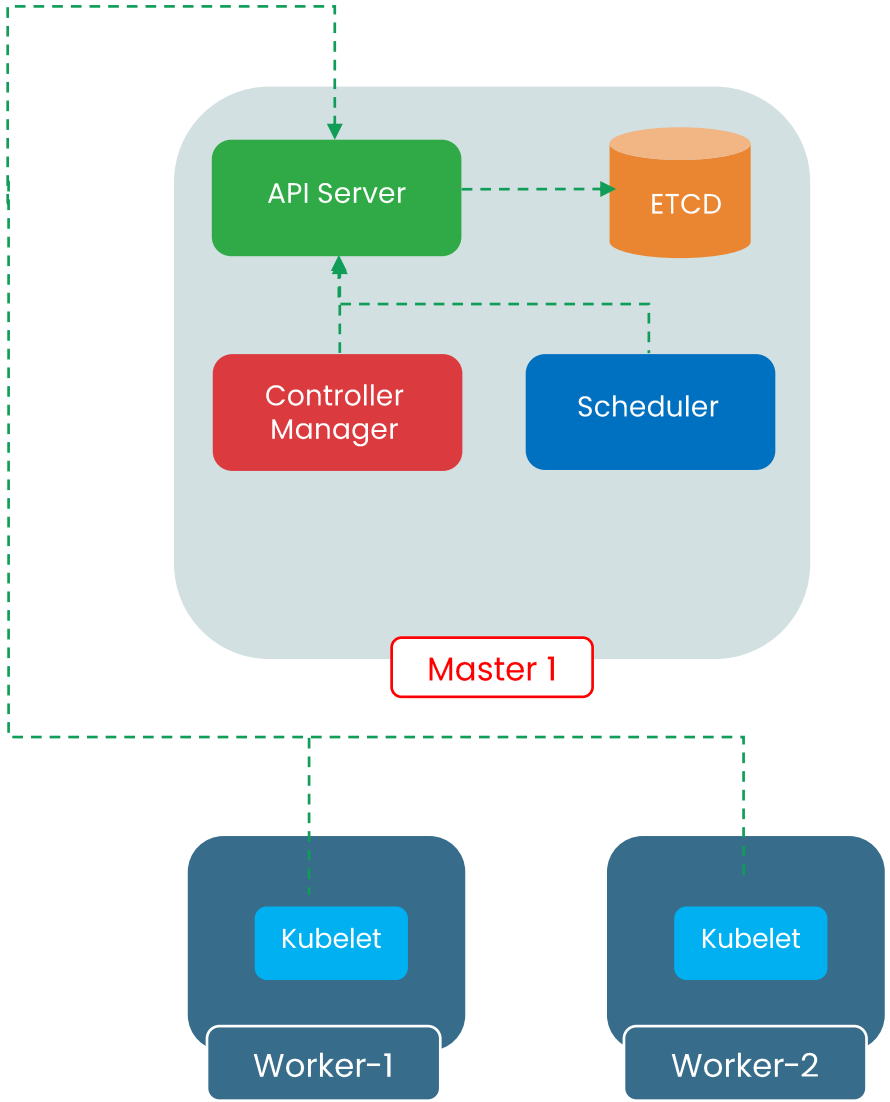
Validating

Kubernetes Cluster



Kubernetes Cluster Architecture



RAM: 4GB

CPU: 2vCPUs

OS: Ubuntu 16.04.7

Google Cloud Platform

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1. Validating CMD Tools: kubeadm & kubectl

kubeadm

```
kubeadm version
```

```
kubeadm version: &version.Info{Major:"1", Minor:"20", GitVersion:"v1.20.2",
GitCommit:"1e11e4a2108024935ecfcb2912226cedeafd99df", GitTreeState:"clean", BuildDate:"2021-1-14T12:47:53Z",
GoVersion:"go1.15.2", Compiler:"gc", Platform:"linux/amd64"}
```

kubectl

```
kubectl version
```

```
Client Version: version.Info{Major:"1", Minor:"20", GitVersion:"v1.20.2",
GitCommit:"1e11e4a2108024935ecfcb2912226cedeafd99df", GitTreeState:"clean", BuildDate:"2021-1-14T12:50:19Z",
GoVersion:"go1.15.2", Compiler:"gc", Platform:"linux/amd64"}
Server Version: version.Info{Major:"1", Minor:"20", GitVersion:"v1.20.2",
GitCommit:"1e11e4a2108024935ecfcb2912226cedeafd99df", GitTreeState:"clean", BuildDate:"2021-1-14T12:41:49Z",
GoVersion:"go1.15.2", Compiler:"gc", Platform:"linux/amd64"}
```

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2. Validating Cluster Nodes

Cluster Nodes

```
kubectl get nodes -o wide
```

```
NAME       STATUS     ROLES    AGE   VERSION   INTERNAL-IP   EXTERNAL-IP   OS-IMAGE             KERNEL-VERSION    CONTAINER-RUNTIME
master     Ready      master   26h   v1.20.2   10.128.0.10   <none>        Ubuntu 16.04.7 LTS   4.15.0-1086-gcp   docker://19.3.11
worker-1   Ready      <none>   26h   v1.20.2   10.128.0.11   <none>        Ubuntu 16.04.7 LTS   4.15.0-1086-gcp   docker://19.3.11
worker-2   Ready      <none>   26h   v1.20.2   10.128.0.12   <none>        Ubuntu 16.04.7 LTS   4.15.0-1086-gcp   docker://19.3.11
```

Join command

```
kubeadm token create --print-join-command
```

```
W1024 16:16:57.627637    4325 configset.go:348] WARNING: kubeadm cannot validate component configs for API
groups [kubelet.config.k8s.io kubeproxy.config.k8s.io]
kubeadm join 10.128.0.12:6443 --token vitjis.opqqld7rj2egse89     --discovery-token-ca-cert-hash
sha256:e28d615cf5826b1d347e0ff36364ef58faa08b8dc08b7599b104797d2a94f2f6
```

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3. Validating Kubernetes Components

Kubernetes Cluster “Components”

```
Kubectl get pods -n kube-system
```

```
NAME                                READY   STATUS    RESTARTS   AGE
coredns-f9fd979d6-jvpwl             1/1     Running   0          25h
coredns-f9fd979d6-njdgv             1/1     Running   0          25h
etcd-master                         1/1     Running   0          25h
kube-apiserver-master               1/1     Running   0          25h
kube-controller-manager-master      1/1     Running   0          25h
kube-proxy-2dqdr                    1/1     Running   0          25h
kube-proxy-grtff                    1/1     Running   0          25h
kube-proxy-pgk54                    1/1     Running   0          25h
kube-scheduler-master               1/1     Running   0          25h
weave-net-h7t7t                     2/2     Running   0          25h
weave-net-n5bfk                     2/2     Running   0          25h
weave-net-ssjls                     2/2     Running   0          25h
```

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4. Validating Services: Docker & Kubelet

Docker

```
systemctl status docker
```

```
● docker.service - Docker Application Container Engine
   Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2021-1-18 15:09:48 UTC; 23min ago
     Docs: https://docs.docker.com
. . .
```

Kubelet

```
systemctl status kubelet
```

```
● kubelet.service - kubelet: The Kubernetes Node Agent
   Loaded: loaded (/lib/systemd/system/kubelet.service; enabled; vendor preset: enabled)
  Drop-In: /etc/systemd/system/kubelet.service.d
           └─10-kubeadm.conf
   Active: active (running) since Mon 2021-1-18 15:10:33 UTC; 24min ago
. . .
```

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5. Deploying Test Deployment

```
kubectl apply -f https://k8s.io/examples/controllers/nginx-deployment.yaml
```

```
deployment.apps/nginx-deployment created
```

```
Kubectl get deploy -o wide
```

```
NAME               READY   UP-TO-DATE   AVAILABLE   AGE     CONTAINERS   IMAGES         SELECTOR
nginx-deployment   3/3     3            3           4m45s   nginx        nginx:1.14.2   app=nginx
```

```
Kubectl get pods -o wide
```

```
NAME                                READY   STATUS    RESTARTS   AGE     IP           NODE       NOMINATED NODE   READINESS GATES
nginx-deployment-66b6c48dd5-6bd2g   1/1     Running   0          3m36s   10.36.0.1    worker-1   <none>           <none>
nginx-deployment-66b6c48dd5-74r8d   1/1     Running   0          3m36s   10.44.0.2    worker-2   <none>           <none>
nginx-deployment-66b6c48dd5-l6n4j   1/1     Running   0          3m36s   10.36.0.2    worker-1   <none>           <none>
```

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