

# What the Heck Is Kubernetes

Frédéric Harper

Principal Developer Advocate - Kubefirst

 fharper



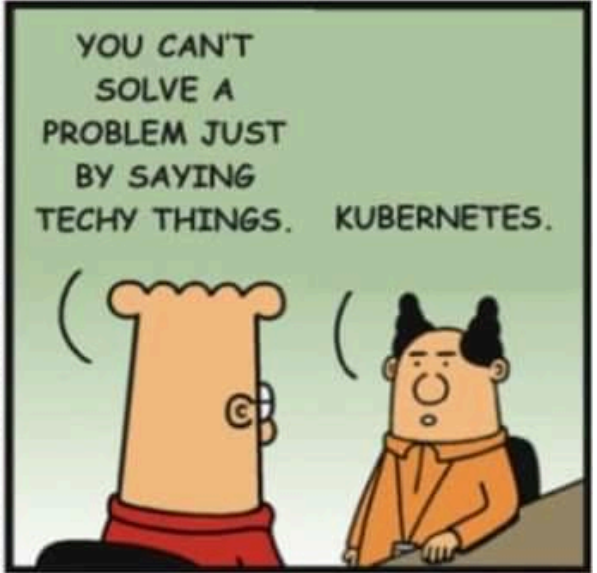
# Kubernewhat?



Dilbert.com @ScottAdamsSays



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# Kubernetes / K8s

- Open Source container orchestrations
- Improved scalability
- High availability
- Resources efficient
- Self-healing capabilities
- Simple stateless disaster recovery model
- *Portability*



# a brief history

2003



2003

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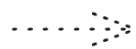
2003 → 2014



2003 → 2014



2003

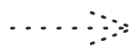


2014

2015



2003

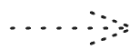


2014

2015



2003



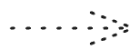
2014

2015

2016



2003



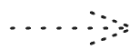
2014

2015

2016



2003



2014

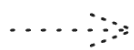
2015

2016





2003



2014

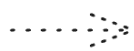
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2016

2017



2003



2014

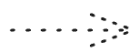
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2017



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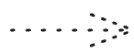
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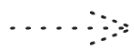
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2016

2017



2003

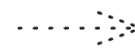


2014

2015

2016

2017



today



# creating a cluster demo

# fundamentals

# Kubernetes in a nutshell



# Kubernetes in a nutshell

cluster

# Kubernetes in a nutshell

cluster

Node  
(Master)

# Kubernetes in a nutshell

cluster

Node  
(Master)

a bunch  
of shit  
to run  
Kubernetes

# Kubernetes in a nutshell

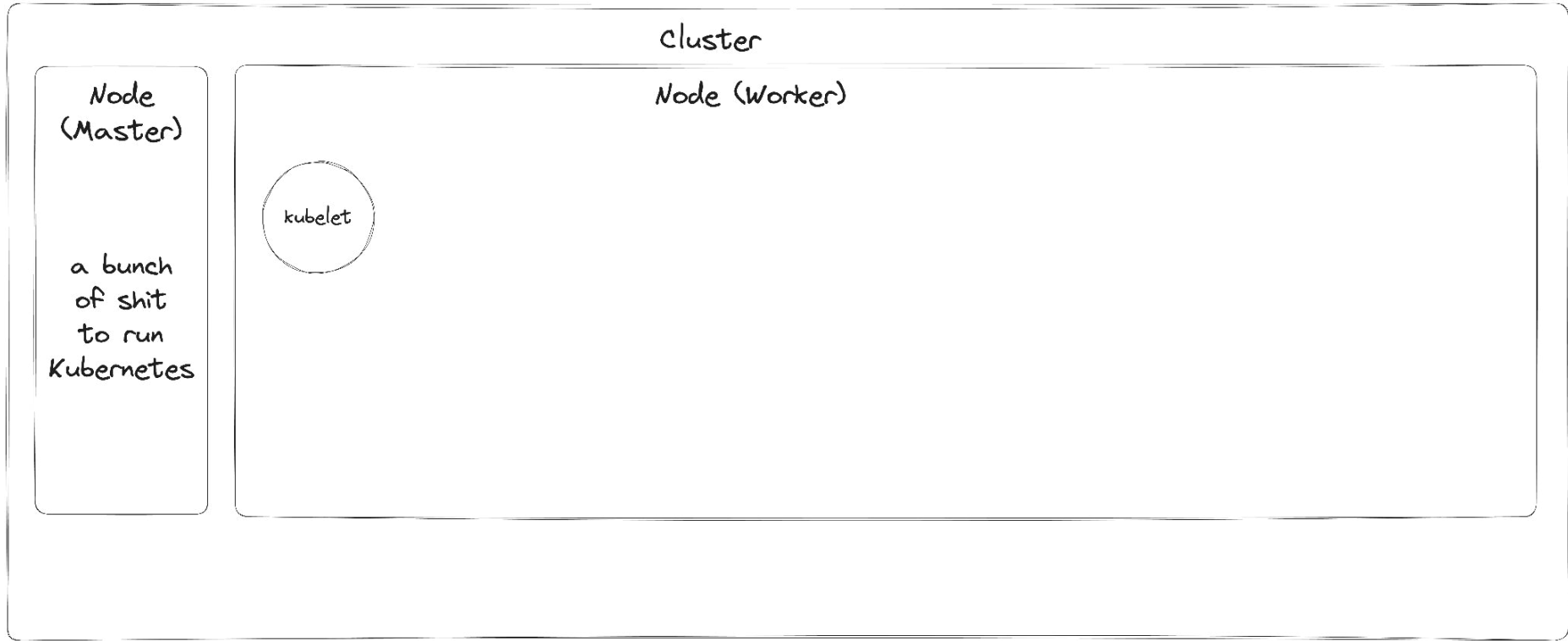
cluster

Node (Worker)

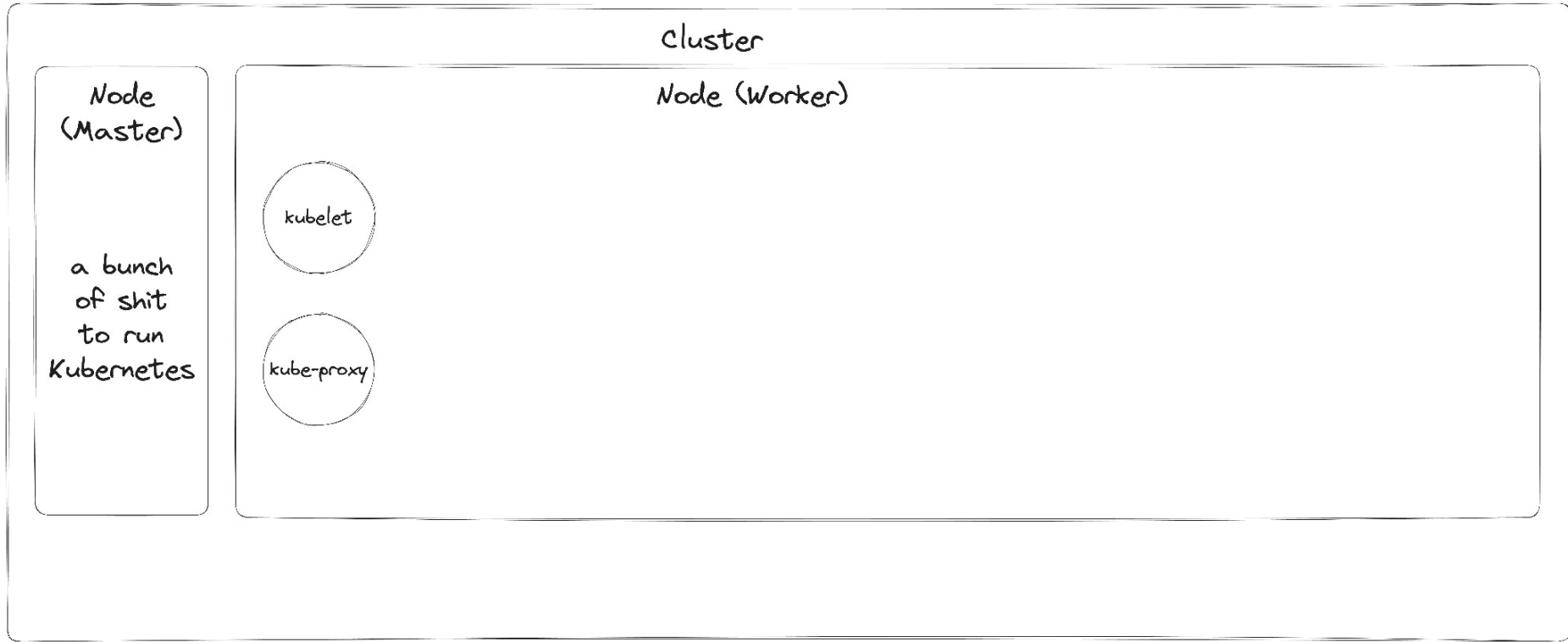
Node  
(Master)

a bunch  
of shit  
to run  
Kubernetes

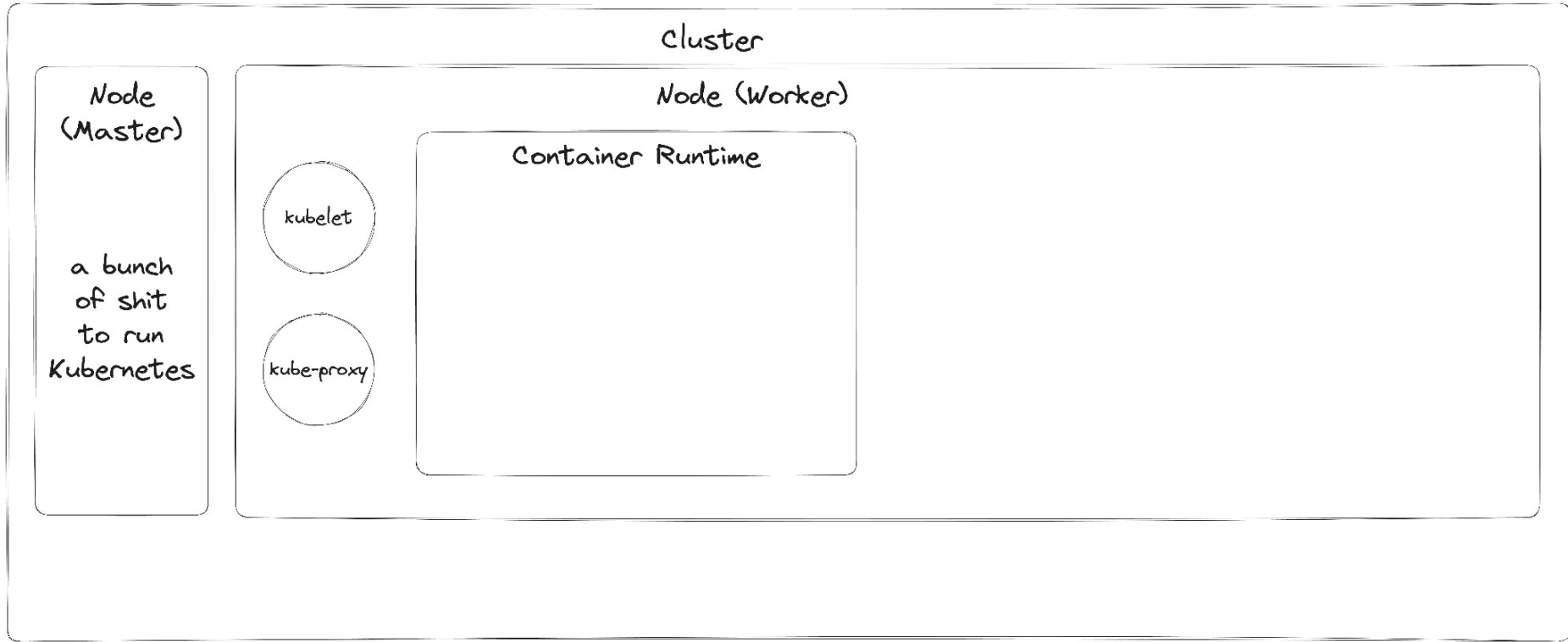
# Kubernetes in a nutshell



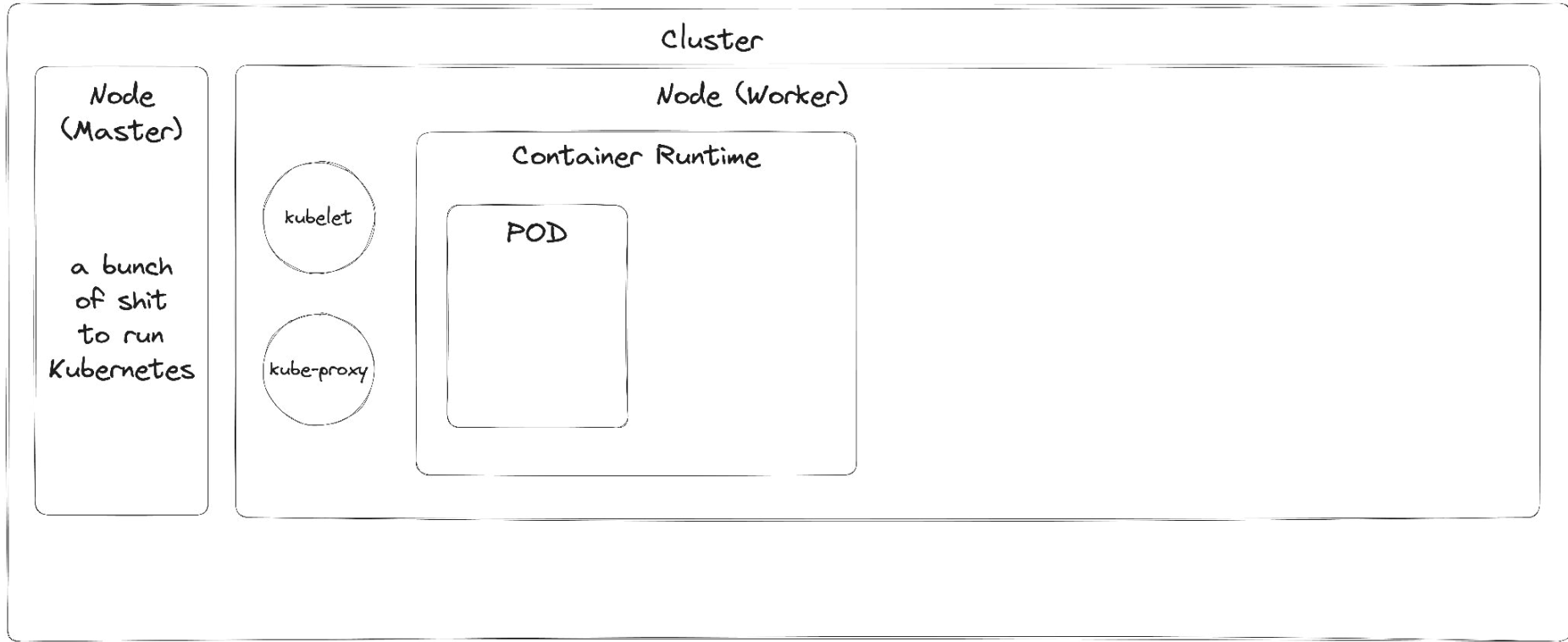
# Kubernetes in a nutshell



# Kubernetes in a nutshell

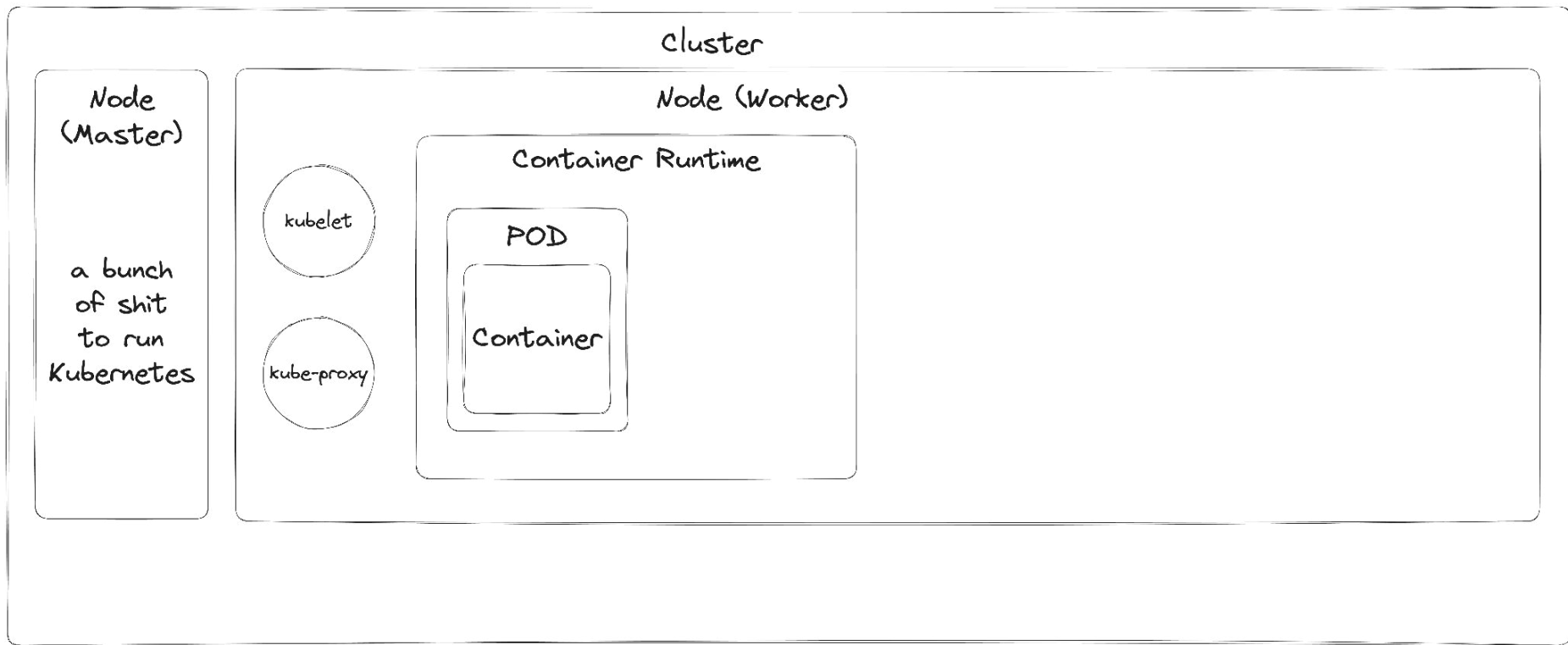


# Kubernetes in a nutshell

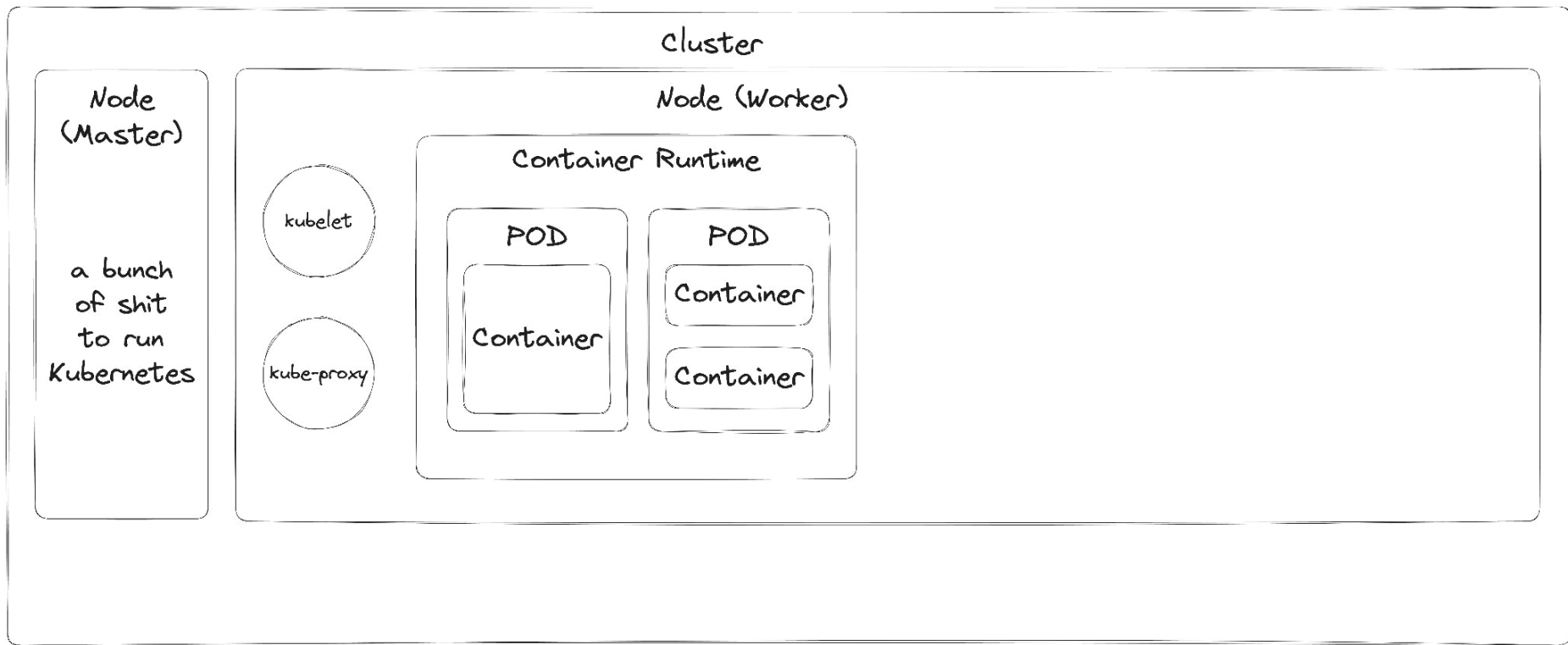




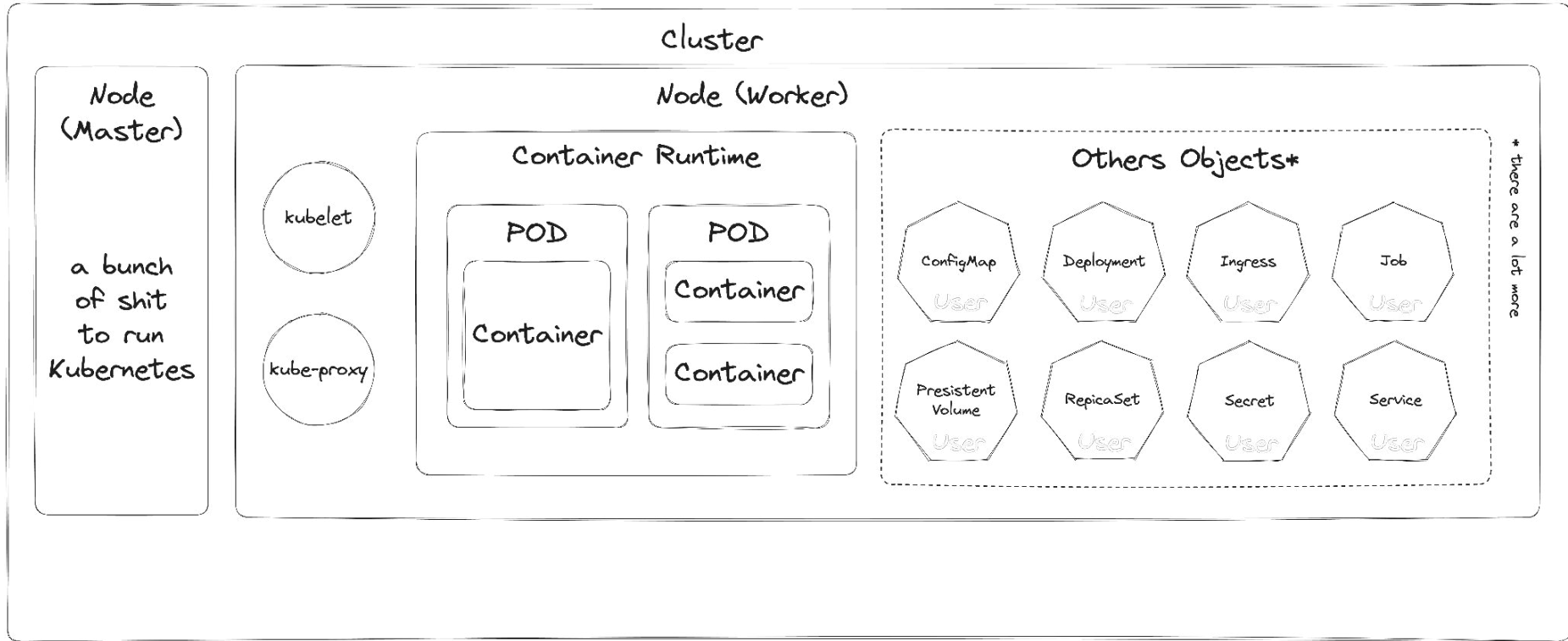
# Kubernetes in a nutshell



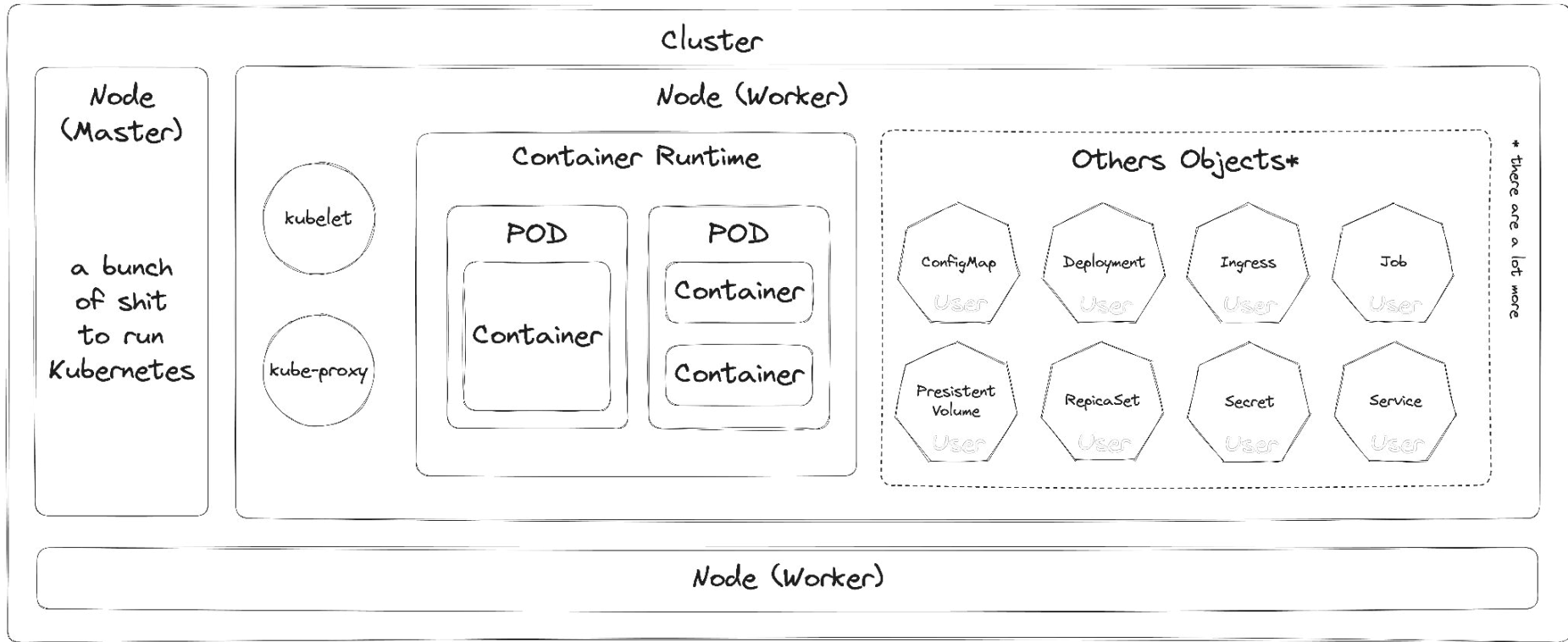
# Kubernetes in a nutshell



# Kubernetes in a nutshell



# Kubernetes in a nutshell



# objects in Kubernetes

# objects in Kubernetes...

**ACRAccessToken**

**APIService**

**Addon**

**AppProject**

**Application**

**ApplicationSet**

**Binding**

**CSIDriver**

**CSINode**

**CSIStorageCapacity**

**Certificate**

**CertificateRequest**

**CertificateSigningRequest**

**Challenge**

**ClusterExternalSecret**

**ClusterIssuer**

**ClusterRole**

**ClusterRoleBinding**

**ClusterSecretStore**

**ClusterWorkflowTemplate**

# objects in Kubernetes.....

**ComponentStatus**

**CompositeResourceDefinition**

**Composition**

**CompositionRevision**

**ConfigMap**

**Configuration**

**ConfigurationRevision**

**ControllerConfig**

**ControllerRevision**

**CronJob**

**CronWorkflow**

**CustomResourceDefinition**

**DaemonSet**

**Deployment**

**ECRAuthorizationToken**

**ETCDSnapshotFile**

**EndpointSlice**

**Endpoints**

**EnvironmentConfig**

**Event**

# objects in Kubernetes.....

**ExternalSecret**

**Fake**

**FlowSchema**

**GCRAccessToken**

**HelmChart**

**HelmChartConfig**

**HorizontalPodAutoscaler**

**HorizontalRunnerAutoscaler**

**Ingress**

**IngressClass**

**Issuer**

**Job**

**Lease**

**LimitRange**

**LocalSubjectAccessReview**

**Lock**

**MutatingWebhookConfiguration**

**Namespace**

**NetworkPolicy**

**Node**



# objects in Kubernetes.....

**Order**

**Password**

**PersistentVolume**

**PersistentVolumeClaim**

**Pod**

**PodDisruptionBudget**

**PodTemplate**

**PriorityClass**

**PriorityLevelConfiguration**

**Provider**

**ProviderConfig**

**ProviderConfigUsage**

**ProviderRevision**

**PushSecret**

**ReplicaSet**

**ReplicationController**

**ResourceQuota**

**Role**

**RoleBinding**

**Runner**

# objects in Kubernetes.....

**RunnerDeployment**

**RunnerReplicaSet**

**RunnerSet**

**RuntimeClass**

**Secret**

**SecretStore**

**SelfSubjectAccessReview**

**SelfSubjectReview**

**SelfSubjectRulesReview**

**Service**

**ServiceAccount**

**StatefulSet**

**StorageClass**

**StoreConfig**

**StoreConfig**

**SubjectAccessReview**

**TokenReview**

**ValidatingWebhookConfiguration**

**VaultDynamicSecret**

**VolumeAttachment**

# objects in Kubernetes.....

**Workflow**

**WorkflowArtifactGCTask**

**WorkflowEventBinding**

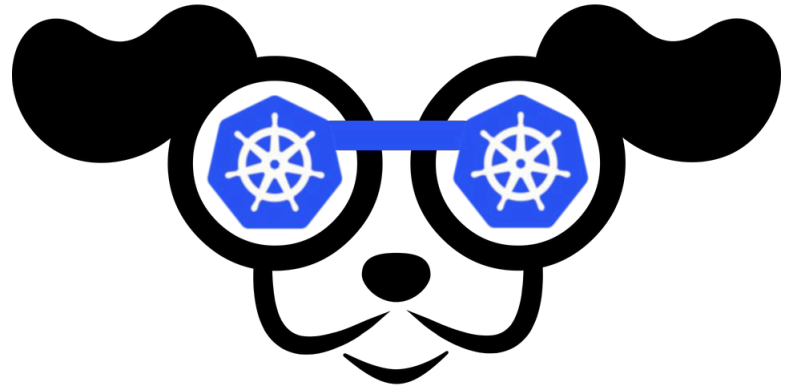
**WorkflowTaskResult**

**WorkflowTaskSet**

**WorkflowTemplate**

**Workspace**

**your best friends**





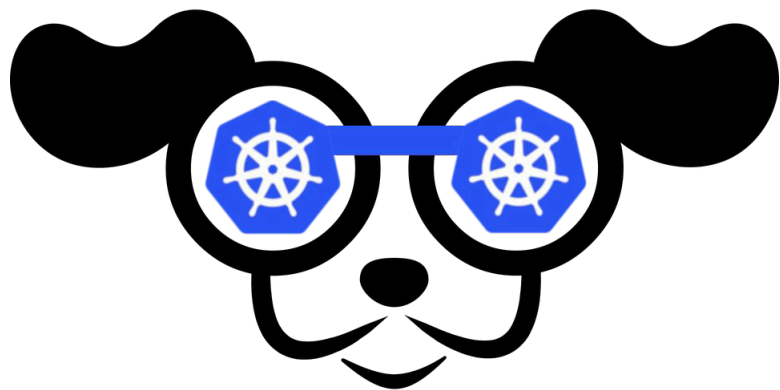
```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx
  labels:
    app: nginx
spec:
  replicas: 1
  selector:
    matchLabels:
      app: nginx
  template:
    metadata:
      labels:
        app: nginx
    spec:
      containers:
      - name: nginx
        image: nginx:latest
        ports:
        - containerPort: 80
```

**deploy**  
**an application**  
**demo**





**install**  
**an application**  
**demo**



# production-ready cluster demo

**chaos engineering fun**

# kubeinvaders

## demo

# resources



**kubernetes.io**





**CNCF**

[slack.cncf.io](https://slack.cncf.io)

**Kubernetes**

[slack.k8s.io](https://slack.k8s.io)

**kubefirst**

[kubefirst.io/slack](https://kubefirst.io/slack)

# tools

**k3d**

**k3d.io**

**k9s**

**k9scli.io**

**kubectl**

**github.com/kubernetes/kubectl**

**kubefirst**

**kubefirst.io**

**kubeinvaders**

**github.com/  
lucky-sideburn/kubeinvaders**

**Helm**

**helm.sh**

# Surfing the Argo CD sync waves

**11:45 tomorrow**

**Ballroom H**





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[fred.dev/coffee](https://fred.dev/coffee)