



kubernetes

Xtext

Sprotty

Theia
The logo for Theia, featuring a stylized white 'T' with three horizontal lines to its left, resembling a speed or motion indicator.

Gitpod

Runs on Kubernetes!

TypeFox
The logo for TypeFox, featuring a stylized white fox head profile inside a circular arrow, followed by the text 'TypeFox'.





























Demo

kubernetes —> k8s





















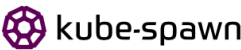
























Greek for “Helmsman”

- Inspired by Borg by Googles
- Juni 2014 : **First commit** on GitHub for Kubernetes.
- July 2014: **Red Hat** and **Google** Collaborate on Kubernetes
- 2015: Google donates Kubernetes 1.0 to **new foundation** (CNCF)
- Aug 2017: Introducing **Pivotal** Container Service (PKS)
- March 2017: Kubernetes now available on **IBM** Cloud Container Service
- Sept 2017: Announcing **Oracle** Container Services for use with Kubernetes
- Oct 2017: **Docker** announced support and integration for Kubernetes, alongside Swarm
- Nov 2017: **Amazon** announces Kubernetes support: Amazon Elastic Container Service
- June 2018: **Microsoft** Azure Kubernetes Service (AKS) GA
- 2018: CNCF Receives \$9 Million Cloud Credit Grant from Google Cloud to Fund Kubernetes Development, Empower Community
- 2019: **Windows Server** supports Kubernetes

Hosted Kubernetes

 Alibaba Cloud Alibaba Cloud Container Service Alibaba Cloud MCap: \$368B	 Amazon EKS Amazon Elastic Container Service for Kubernetes (EKS) Amazon Web Services MCap: \$860B	 Azure Container Service Azure (ACS) Engine Microsoft ★ 994 MCap: \$834B	 Microsoft Azure Azure Kubernetes Service (AKS) Microsoft MCap: \$834B	 Microsoft Azure Azure Stack (ACS) Engine Microsoft ★ 1 MCap: \$834B	 Baidu Cloud Baidu Cloud Container Engine Baidu MCap: \$67.2B	 博云 BoCloud BoCloud BeyondcentContainer Bocloud	 catalyst cloud Catalyst Kubernetes Service Catalyst Cloud ★ 1	 CISCO Cisco Container Platform Cisco MCap: \$207B	 EasyStack open cloud computing EasyStack Kubernetes Service (EKS) EasyStack Funding: \$110M
 eBaoCloud® enable connected insurance eBaoCloud eBaoTech Corporation	 eKing Technology 易 建 科 技 eKing Cloud Container Platform Hainan eKing Technology	 Google Kubernetes Engine Google Kubernetes Engine (GKE) Google MCap: \$766B	 谐云科技 HARMONY CLOUD HarmonyCloud Container Platform Hangzhou Harmony Technology	 HASURA Hasura Hasura Funding: \$1.6M	 HUAWEI Huawei Cloud Container Engine (CCE) Huawei	 IBM Cloud Kubernetes Service IBM Cloud Kubernetes Service IBM MCap: \$118B	 nirmata Nirmata Managed Kubernetes Nirmata	 ORACLE Oracle Container Engine Oracle MCap: \$180B	 OVH Innovation for Freedom OVH Managed Kubernetes Service OVH.com Funding: \$737M
 rackspace the #1 managed cloud company Rackspace Kubernetes-as-a-Service Rackspace Funding: \$17.8M	 SAMSUNG SDS Samsung SDS Kubernetes Service Samsung SDS	 SAP SAP Certified Gardener SAP MCap: \$131B	 SysEleven SysEleven MetaKube SysEleven	 Tencent Cloud Tencent Kubernetes Engine (TKE) Tencent Holdings MCap: \$326B	 时速云 tenxcloud.com TenxCloud Container Engine (TCE) TenxCloud	 vmware® VMware Kubernetes Engine (VKE) VMware MCap: \$57.4B	 ZTE ZTE TECS ZTE		

Kubernetes Distributions

 AGILE STACKS Agile Stacks DevOps Automation Platform Agile Stacks Funding: \$2.53M	 灵雀云 alauda.cn Alauda EE Alauda Funding: \$15M	 AppCode AppCode Pharmed AppCode Funding: \$7.3M	 caicloud 才云 Caicloud Compass Caicloud Funding: \$7.3M	 CANONICAL Canonical Distribution of Kubernetes Canonical ★ 76	 Cloud 66 Maestro Cloud 66 Funding: \$2.24M	 CLOUD FOUNDRY CONTAINER RUNTIME™ Cloud Foundry Container Runtime Cloud Foundry Foundation ★ 248	 containership Containership Funding: \$2.61M	 CSTACK 酷栈科技 CStack MiaoYun CStack Technology Funding: \$14.6M	 DaoCloud DaoCloud Enterprise DaoCloud Funding: \$14.6M
 DIAMANTI Diamanti Converged Container Infrastructure Diamanti Funding: \$43M	 docker Docker EE/CE Docker Funding: \$273M	 Giant Swarm Giant Swarm Managed Kubernetes Giant Swarm Funding: \$3.33M	 HUAWEI Huawei FusionStage Huawei MCap: \$118B	 IBM Cloud IBM Cloud Private IBM MCap: \$118B	 inspur 浪潮 Inspur InCloud Open Platform Inspur MCap: \$118B	 inwinSTACK inwinSTACK kube-ansible inwinSTACK ★ 12	 JD.COM TIG JD.com TIG Jingdong Datacenter OS JD.com MCap: \$33.3B	 Joyent Joyent Triton for Kubernetes Joyent ★ 94 Funding: \$131M	 KONTENA PHAROS Kontena Pharos Kontena ★ 140
 kube-spawn Kinvolk ★ 238	 Kubermatic Loodse Funding: \$273M	 kublr Kubernetes for the enterprise Kublr Kublr Funding: \$3.33M	 MESOSPHERE Mesosphere Kubernetes on DC/OS Mesosphere Funding: \$247M	 METALK8S Scality ★ 50 Funding: \$150M	 MIRANTIS Mirantis Cloud Platform Mirantis Funding: \$220M	 navops by Univa Navops Univa Funding: \$54.8M	 NetEase Cloud Netaease Container Service Dedicated NetEase MCap: \$27.6B	 OPENSIFT OpenShift Red Hat ★ 5,225 MCap: \$21.1B	 ORACLE Oracle Linux Container Services Oracle MCap: \$180B
 Pivotal Pivotal Container Service (PKS) Pivotal MCap: \$4.67B	 PLATFORM9 Platform9 Managed Kubernetes Platform9 Funding: \$36.5M	 portworx Portworx on Kubernetes Portworx Funding: \$28.5M	 QFusion WOQU Technology Funding: \$256M	 QINIU Qiniu Enterprise Platform Qiniu Funding: \$256M	 RANCHER Rancher Labs ★ 9,751 Funding: \$30M	 ROBIN ROBIN Hyper-Converged Kubernetes Robin Systems Funding: \$51.2M	 STACKPOINT StackPointCloud StackPointCloud Funding: \$51.2M	 SUPERGIANT Supergiant ★ 604	 SUSE SUSE CaaS Platform SUSE
 TECTONIC Tectonic Red Hat ★ 549 MCap: \$21.1B	 Telekube MADE BY GRAVITATIONAL Telekube Gravitational Funding: \$4.2M	 Typhoon Poseidon ★ 715	 vmware VMware Pivotal Container Service (PKS) VMware MCap: \$57.4B	 ise2c TECHNOLOGY 睿云智合 WiseCloud Wise2c Technology					

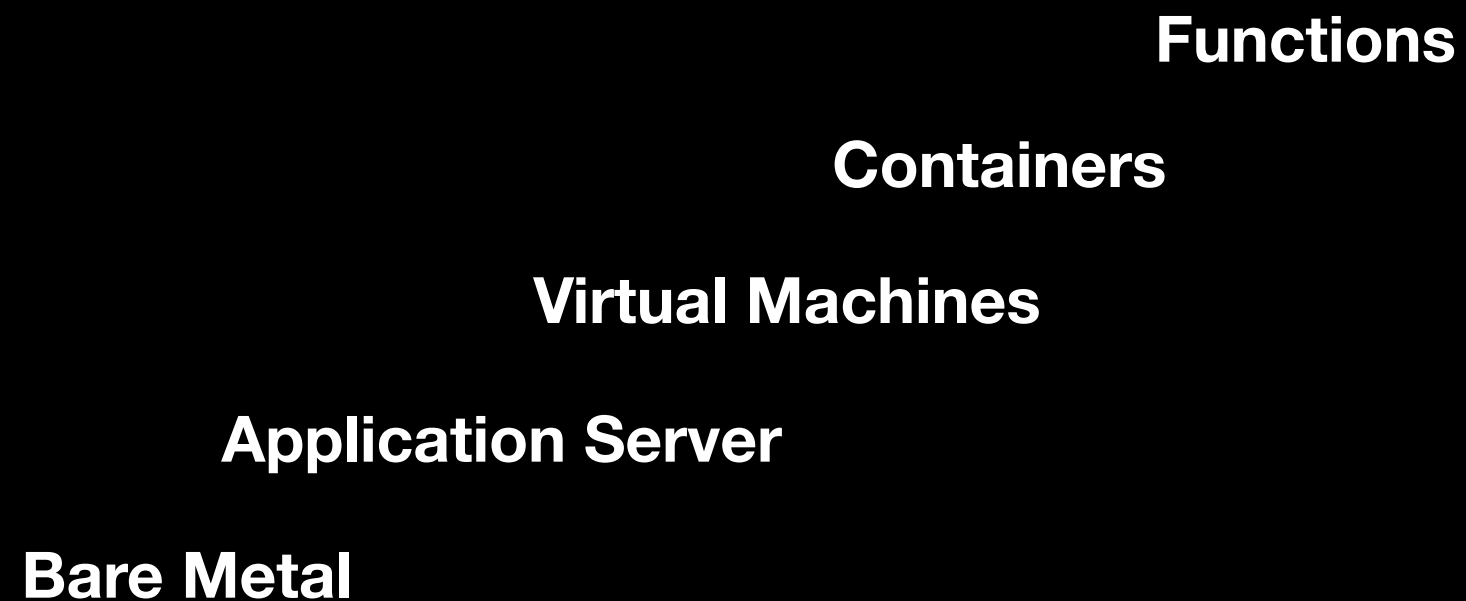
Github:

State of the Octoverse 2018

		Contributors
1	Microsoft/vscode	19K
2	facebook/react-native	10K
3	tensorflow/tensorflow	9.3K
4	angular/angular-cli	8.8K
5	MicrosoftDocs/azure-docs	7.8K
6	angular/angular	7.6K
7	ansible/ansible	7.5K
8	kubernetes/kubernetes	6.5K
9	npm/npm	6.1K
10	DefinitelyTyped/DefinitelyTyped	6.0K

Container

Deploy and Run Applications



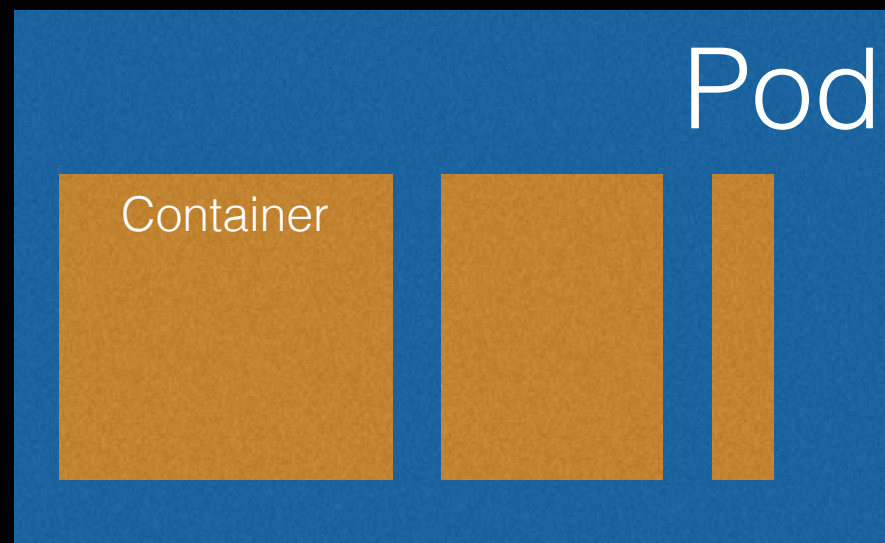
My Containerized Application

Kubernetes is Orchestrator and Interface

Deploy
Self-Heal
Scale Horizontally
Networking
Security
Monitoring
Logging
Volumes
LoadBalancers

Core Concepts

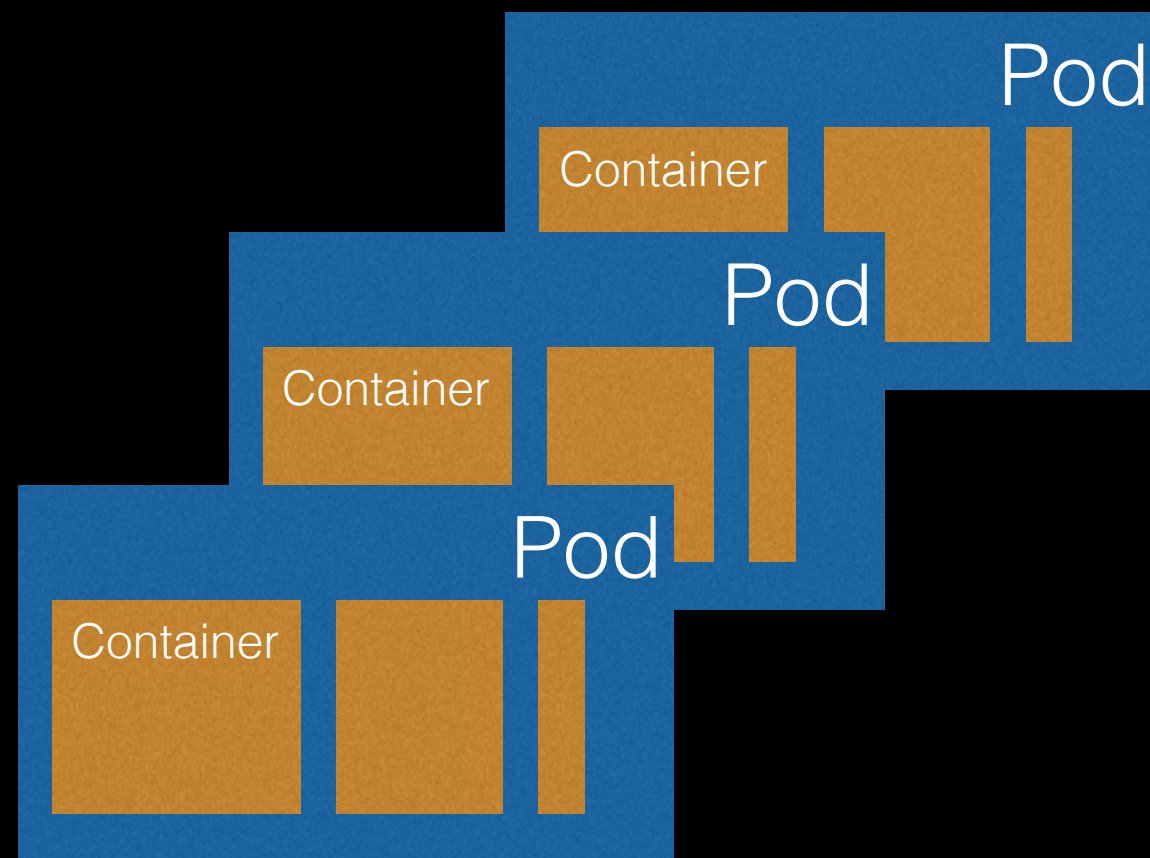
Pod



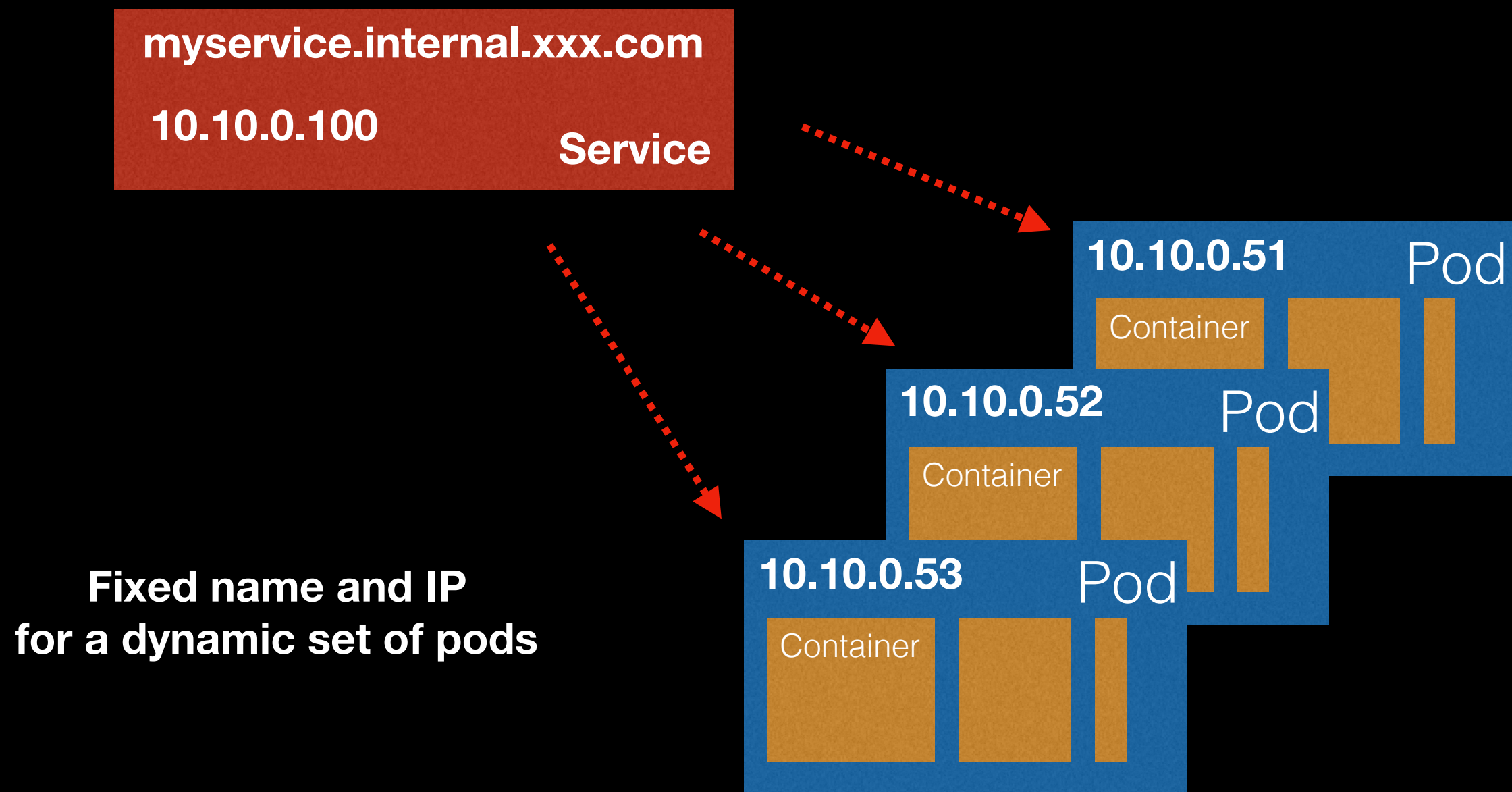
one or more containers
atomic unit of scheduling
runs on single computer
has cluster-internal IP address
container share localhost
has volumes

Deployments

Template for Pods of the same kind



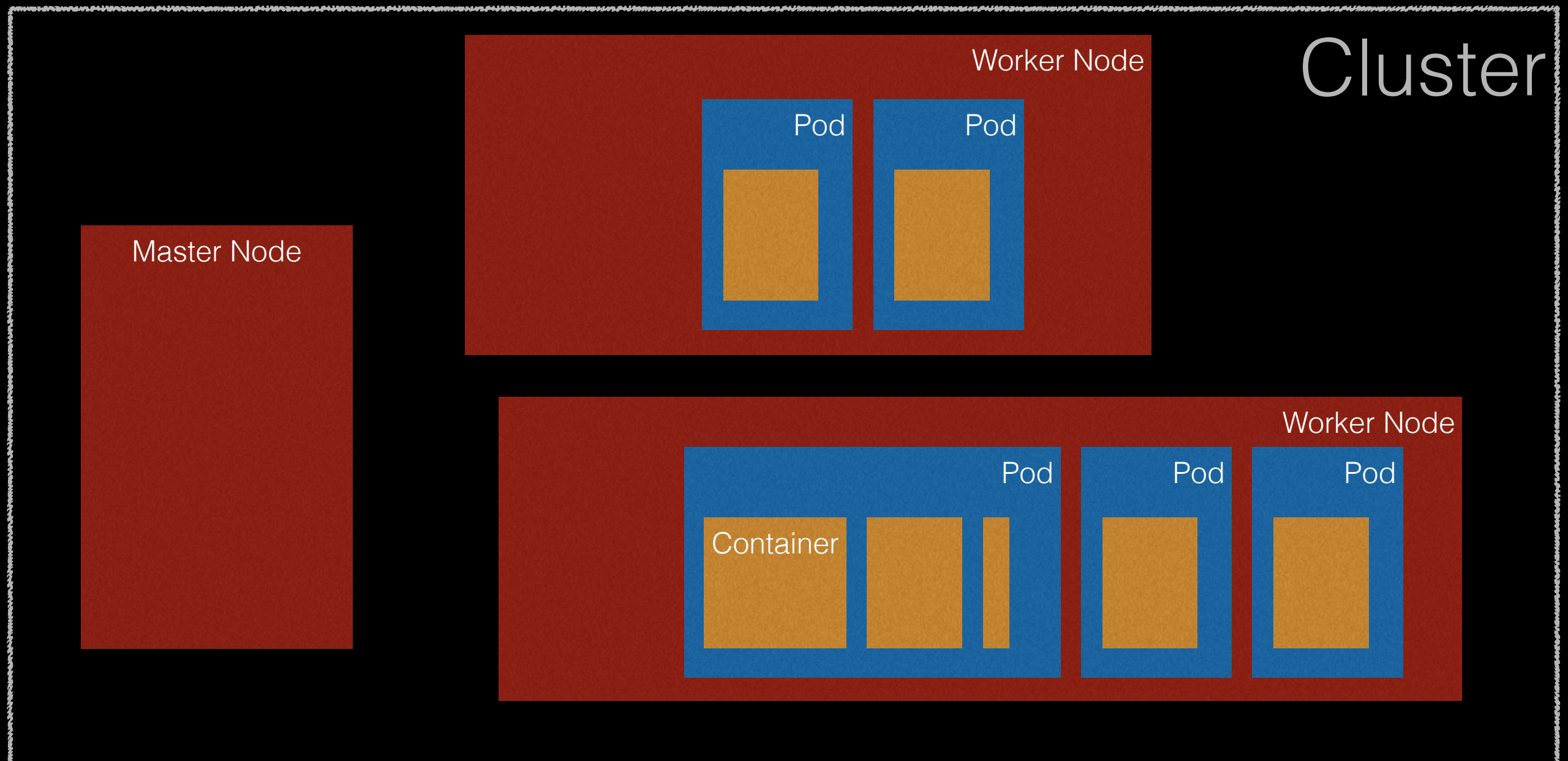
Services



Clusters and Nodes

Cluster: master-node + 1..n worker nodes

Node: physical or virtual computer

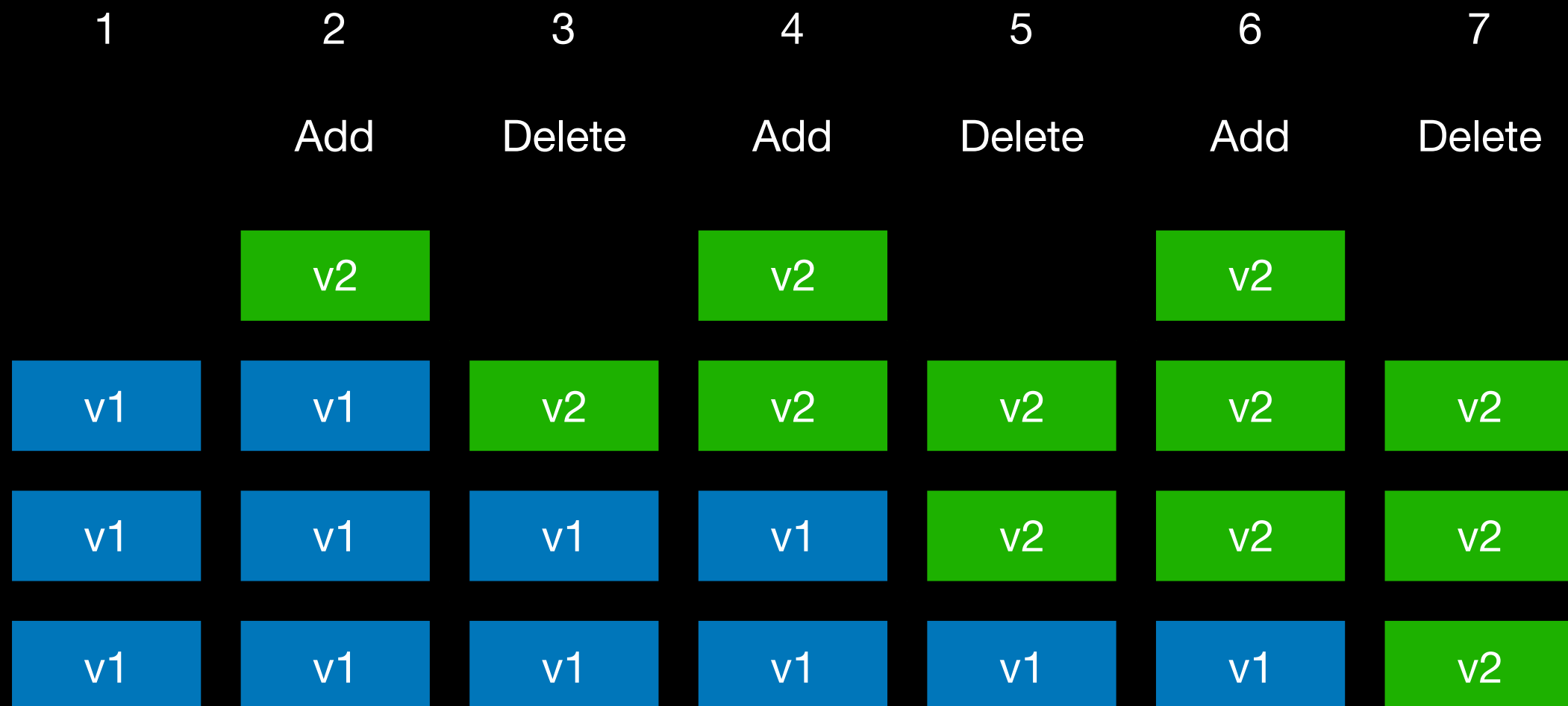


Demo

- * Deploy
- * Scale
- * Self-heal

Rolling Update

Updating from v1 to v2 in 7 steps with zero downtime



CI / CD

1. Docker Registry + kubectl apply -f k8s.yaml
2. Docker Registry + helm install
3. Staging Deployment
4. Git-branch deployments
5. Red/Black or Blue/Green Deployments, Canary tests

Kubernetes Enables

Infrastructure as Code

GitOps

DevOps

Microservices/Modularization

Cloud-Portability

Horizontal Scaling

Self-Healing