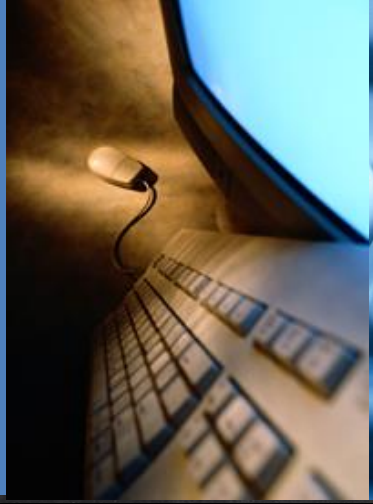

分布式系统
Distributed Systems

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补充内容 — 云原生系统中的DevOps实践

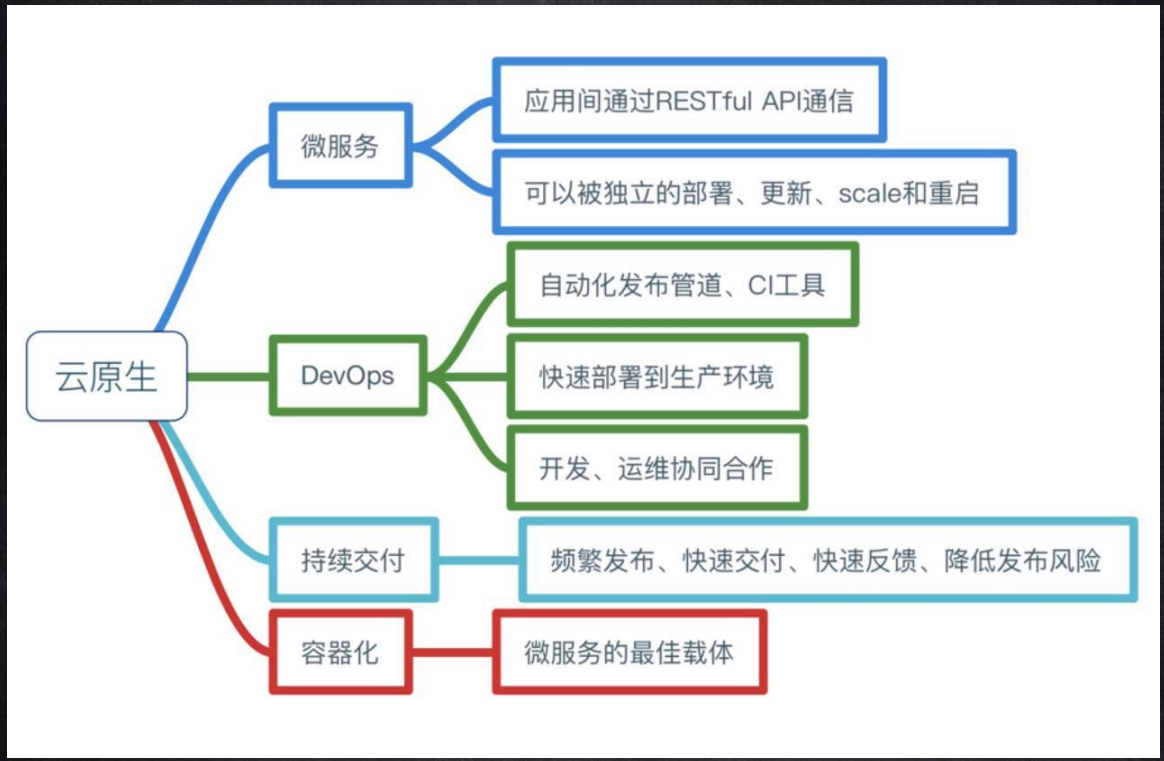
1 背景知识

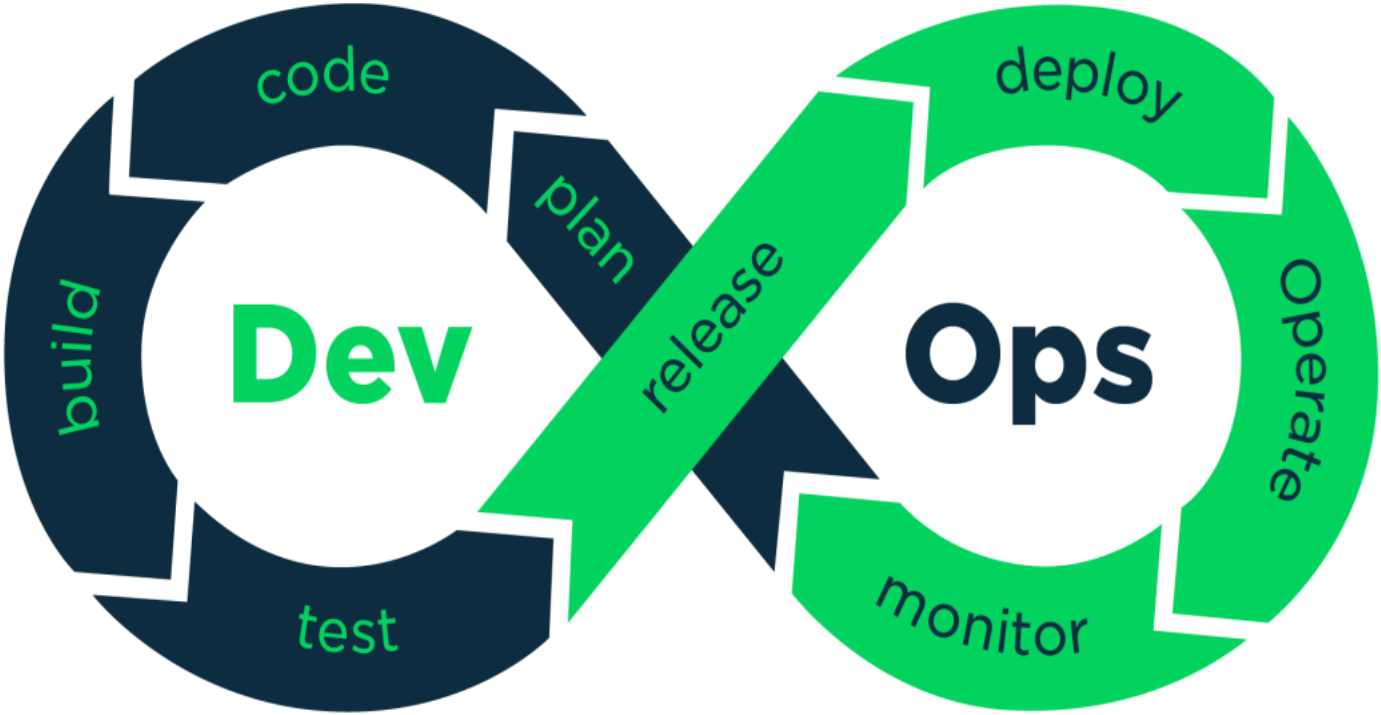
云原生系统

https://www.cncf.io/

云原生技术帮助公司和机构在公有云、私有云和混合云等新型动态环境中，构建和运行可弹性扩展的应用。云原生的代表技术包括容器、服务网格、微服务、不可变基础设施和声明式API。

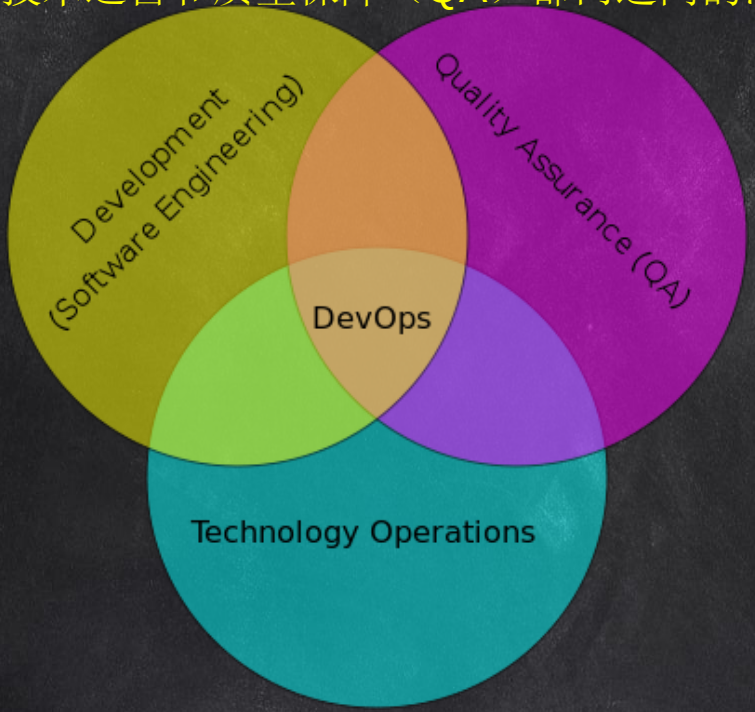
云原生系统的能力


云原生
微服务
应用间通过RESTful API通信
可以被独立的部署、更新、scale和重启
DevOps
自动化发布管道、CI工具
快速部署到生产环境
开发、运维协同合作
持续交付
频繁发布、快速交付、快速反馈、降低发布风险
容器化
微服务的最佳载体


code
plan
build
Dev
test
release
deploy
Ops
operate
monitor

DevOps

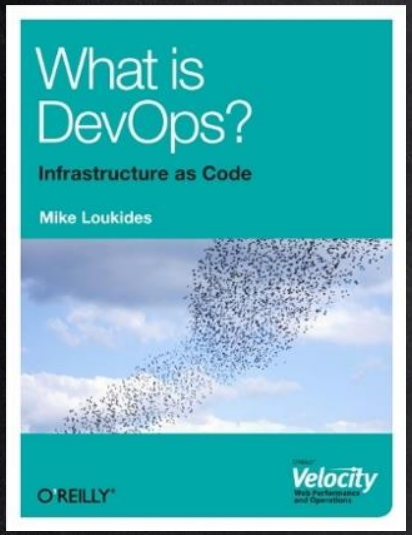
DevOps是一组过程、方法与系统的统称，用于促进开发（应用程序/软件工程）、技术运营和质量保障（QA）部门之间的沟通、协作与整合。

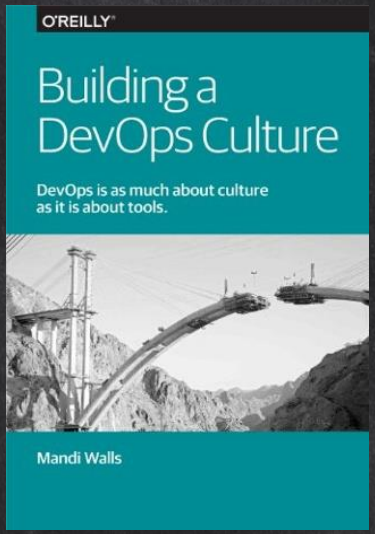


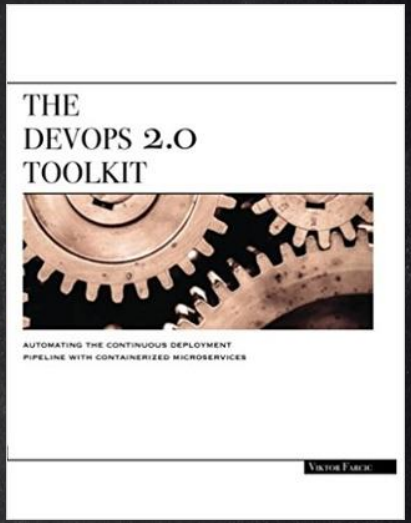
DevOps原则

- 基础设施即代码（Infrastructure as Code）
- 持续交付（Continuous Delivery）
- 协同工作（Culture of Collaboration）

参考资料

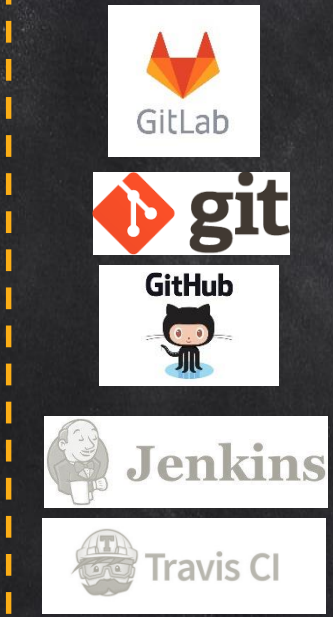


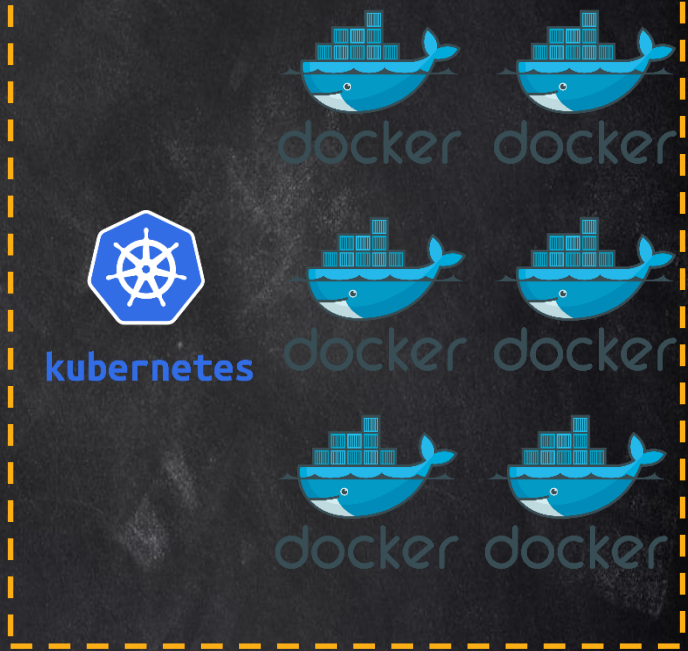




- https://devops.com/is-noops-the-future-of-cloud-networking/
- https://pivotal.io/cn/devops/resources
- https://puppet.com/resources/whitepaper

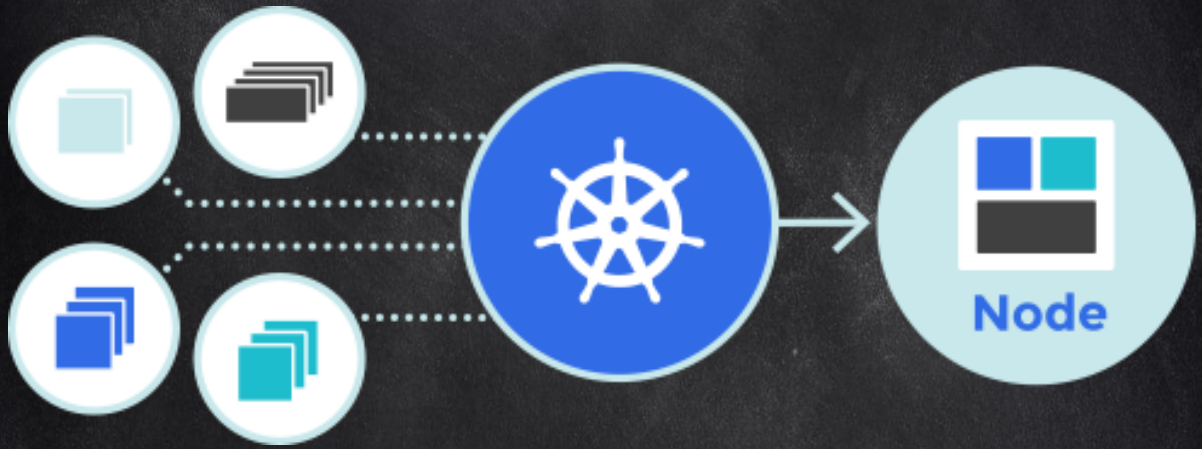
背景知识





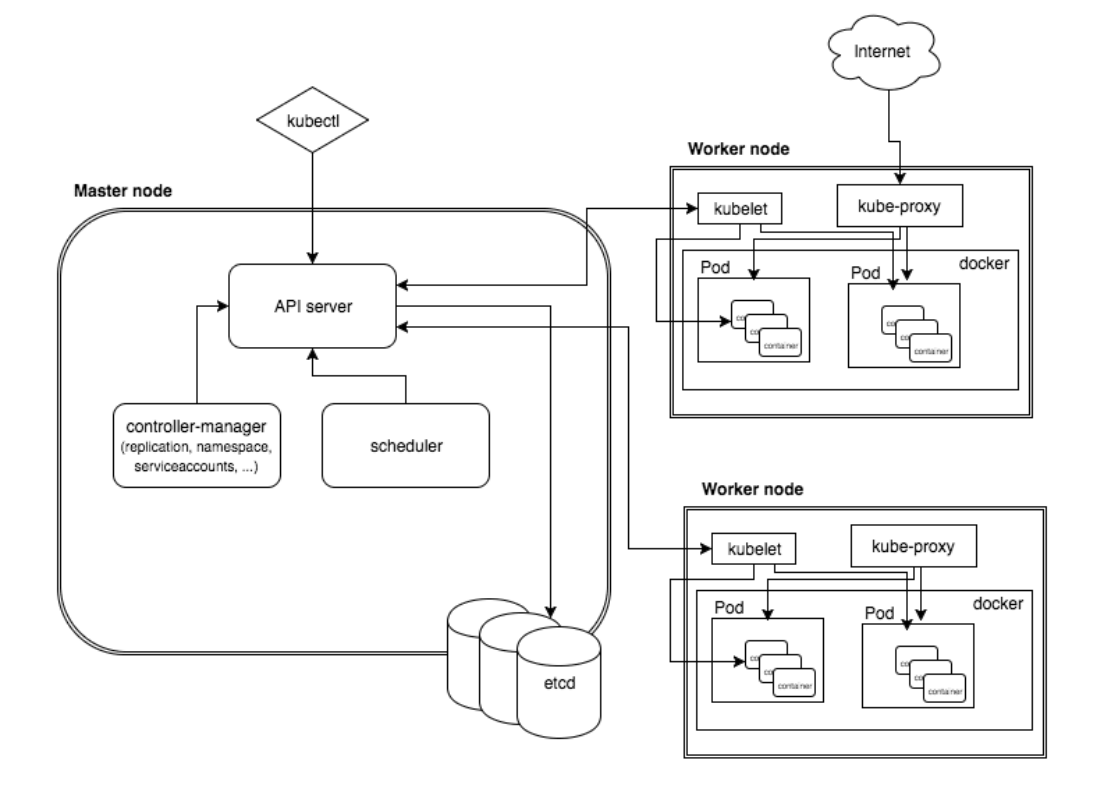
IDE 代码库/CI/CD 云平台

Kubernetes



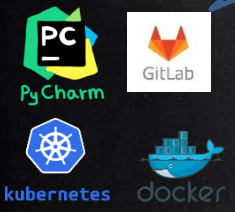
Kubernetes is an open-source system for automating deployment, scaling, and management of containerized applications.

Kubernetes


Internet
kubectl
Worker node
Master node
kubelet
kube-proxy
Pod
Pod
docker
API server
container
controller-manager
(replication, namespace,
serviceaccounts, ...)
scheduler
Worker node
kubelet
kube-proxy
Pod
Pod
docker
container
etcd

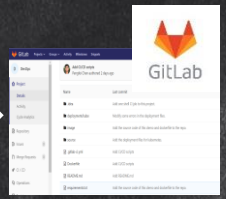
DevOps流程

1. gitlab-runner;
2. Container repository

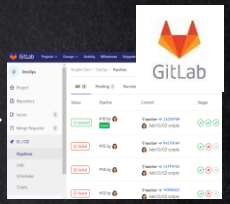


开发/部署/运行
环境搭建

代码编写



代码编写



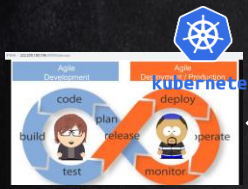
CI/CD工作流

Gitlab-runner

程序测试

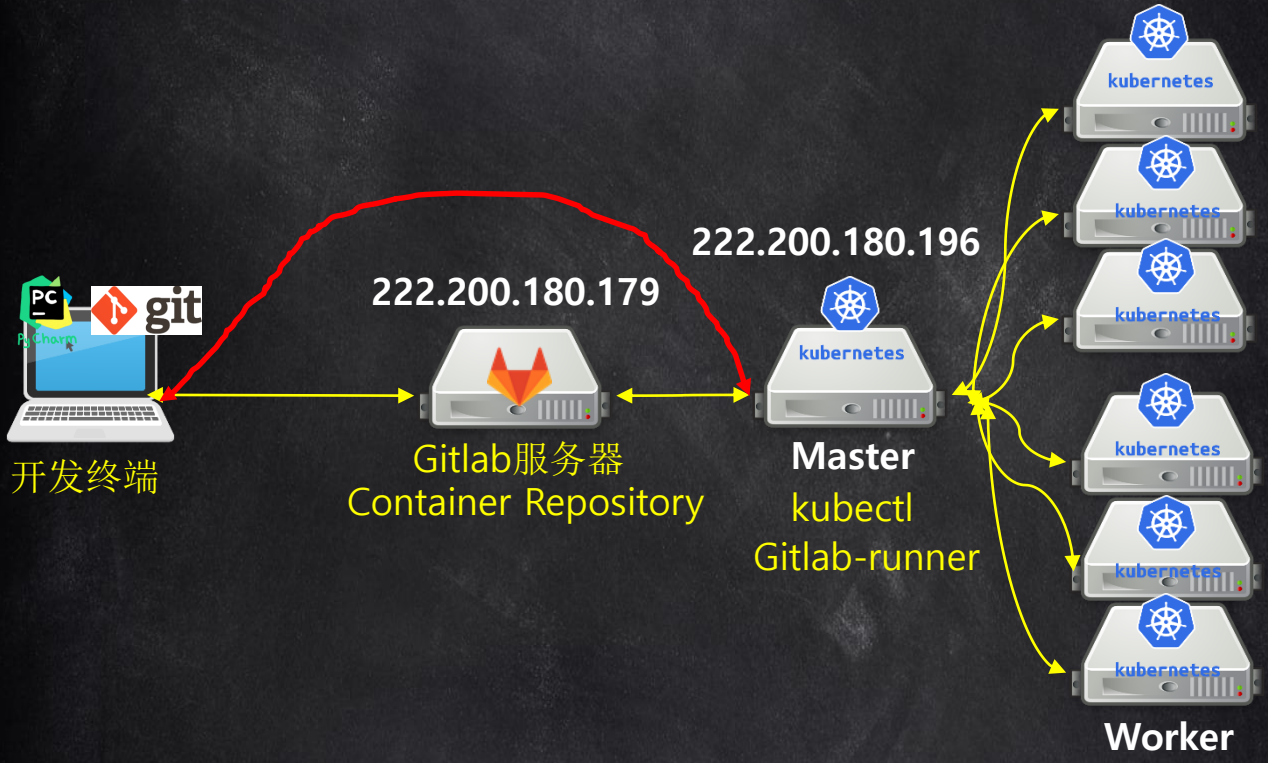
镜像创建/存储

应用部署



服务就绪

系统部署


222.200.180.196
222.200.180.179
kubernetes
git
PyCharm
开发终端
Gitlab服务器
Container Repository
Master
kubectl
Gitlab-runner
Worker

Demo