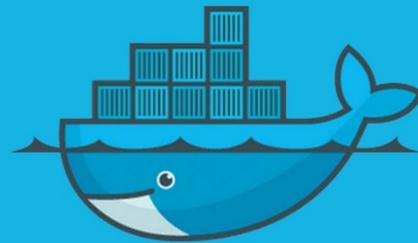


Docker微服务实践

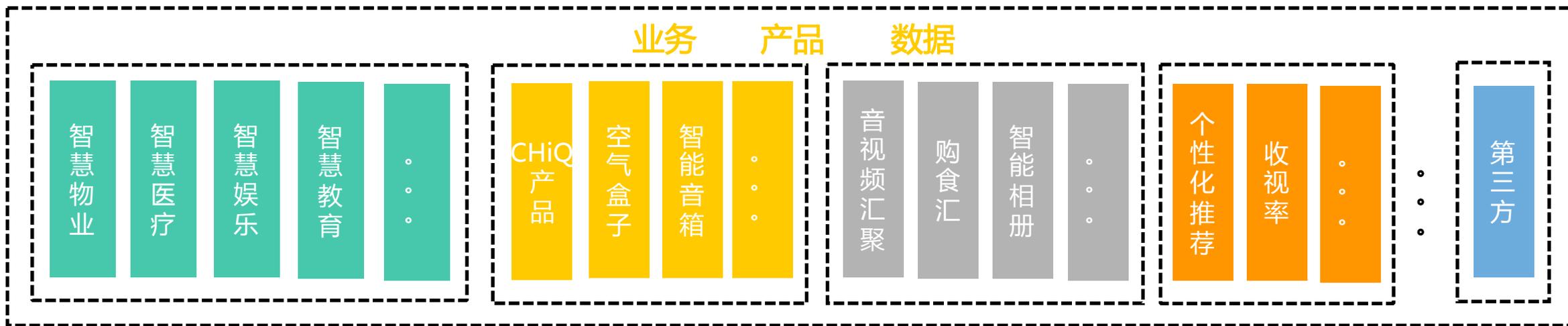
软件与服务中心 云服务部 李伟





- Docker
- Docker私有仓库、Hub扩展
- Docker与持续集成
- Docker网络
- Docker 与 微服务

长虹业务概述



黑电：包括智能电视、盒子

生态圈：1+N 包括智慧物业等

白电：包括智能空调、智能冰箱、智能热水器

电商：包括官网、微信、第三方电商平台

器件：包括器件制造和传感器设计

外部服务：能力开放

公共服务：运营支撑、售后服务、诊断运维

基础能力概述

CHiQ 电视

长虹系列冰箱

长虹系列空调

喷灌

窗帘

安防

红外

空气



用户

用户名、密码、业务ID



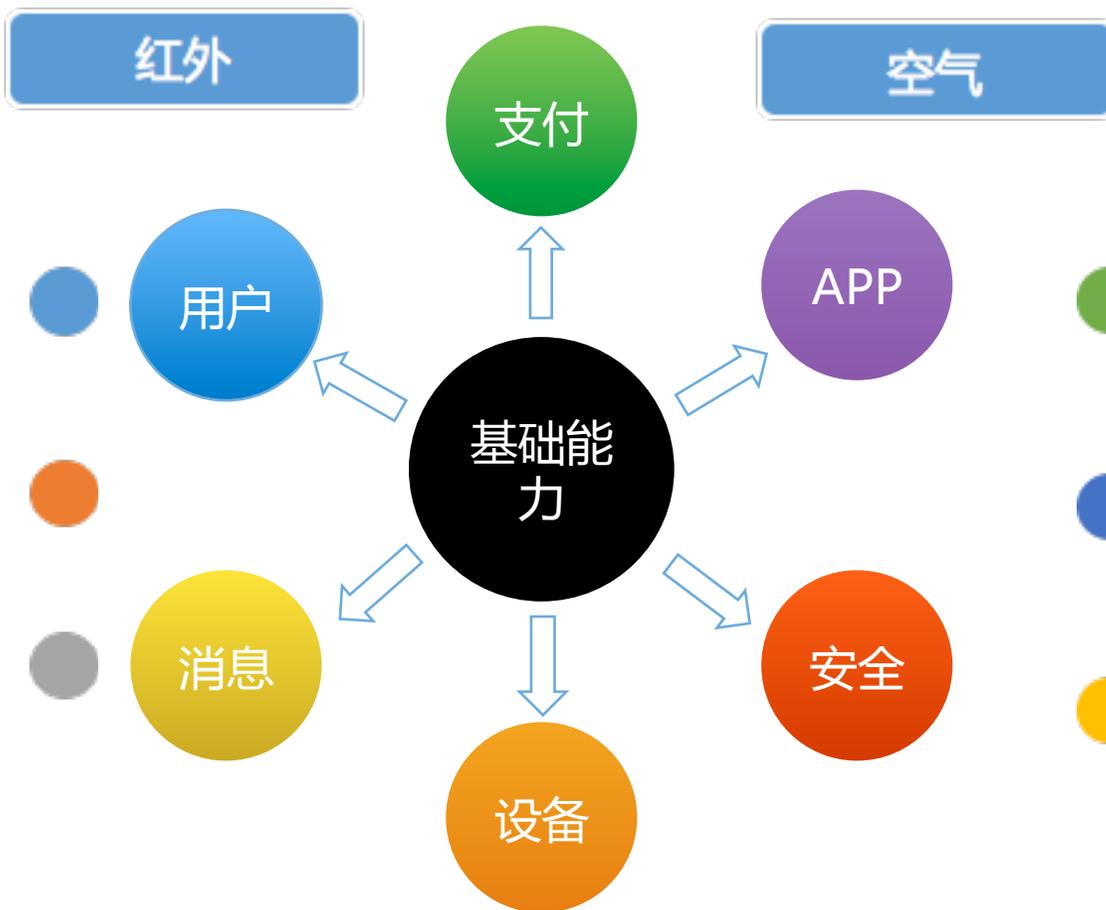
消息

文本消息、声音消息、视频消息、消息推送



设备

文本消息、声音消息、视频消息、消息推送



支付

支付宝、微信支付、银联、网银支付



移动应用开发平台

Native+H5、统一UI控件、Android-SDK、IOS-SDK



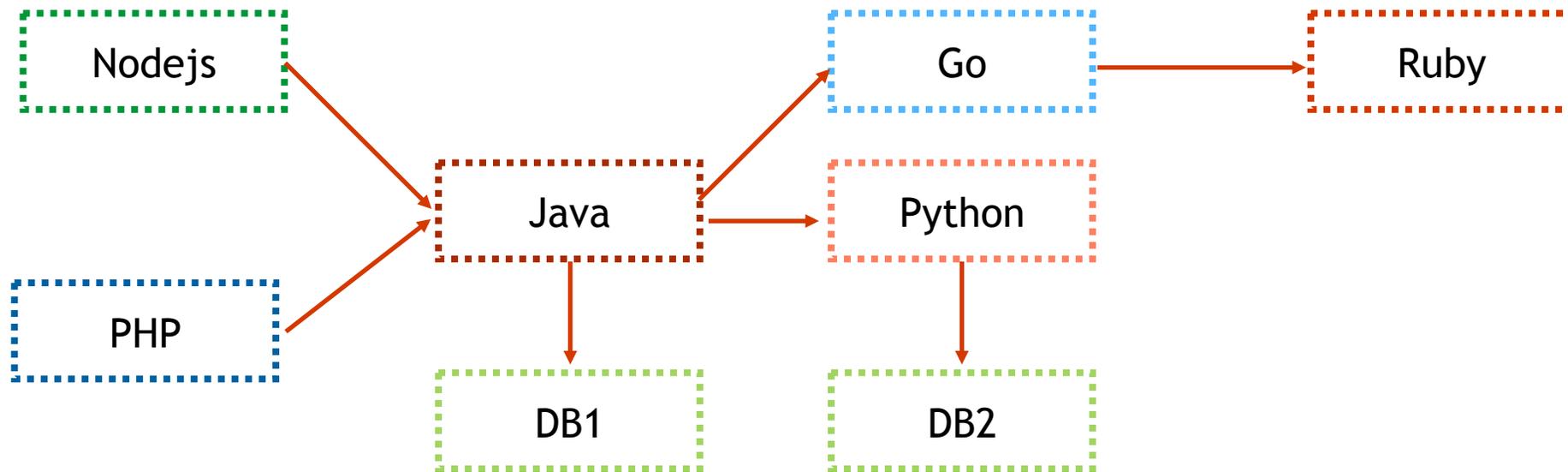
安全

文本消息、声音消息、视频消息、消息推送

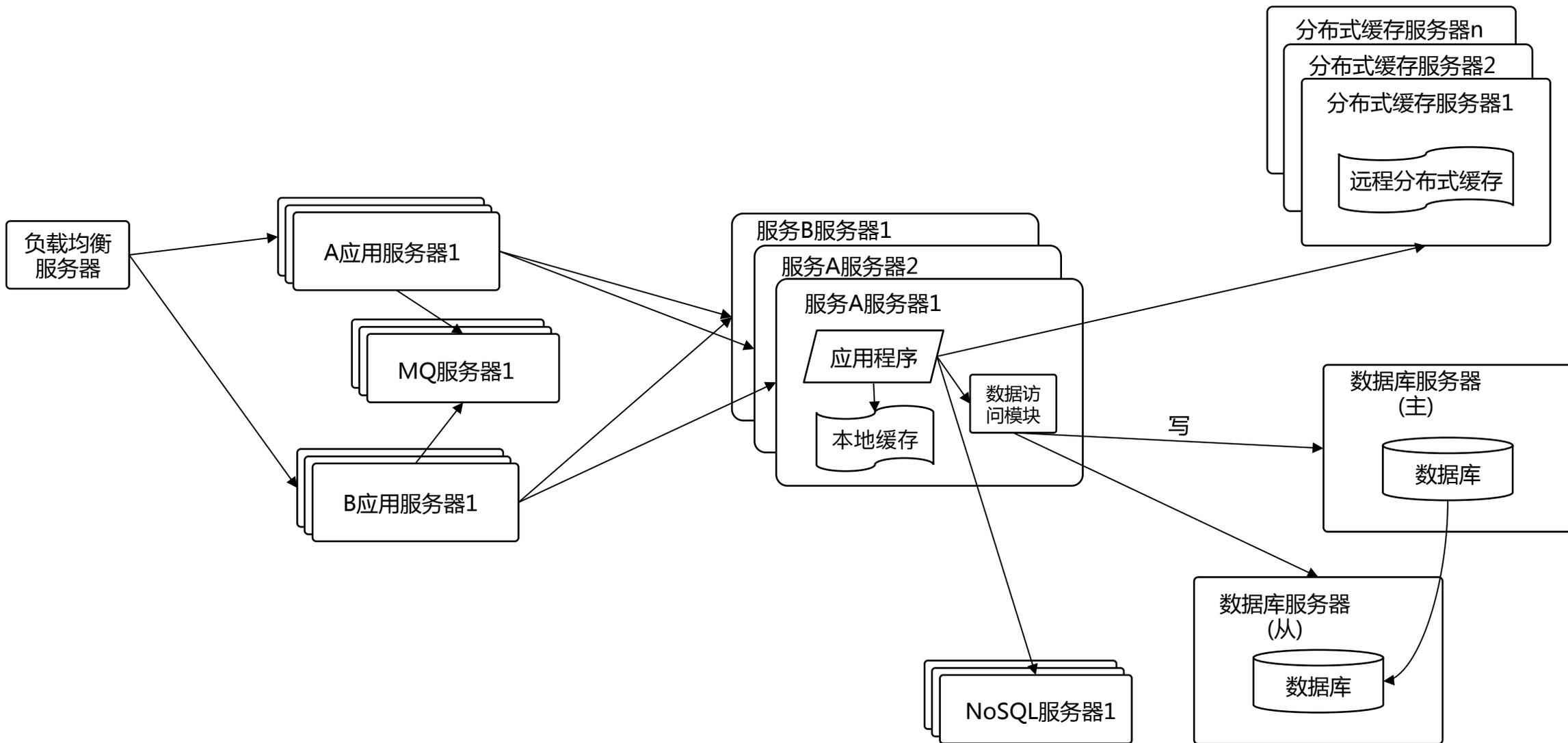


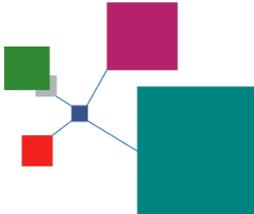
...

技术栈



架构演变





Why is Docker?

持续部署与测试

跨云平台支持

环境标准化和版本控制

高资源利用率与隔离

容器跨平台性与镜像

Why is Docker?



传统虚拟化



Docker虚拟化

Docker 生态

Service Providers



Dev Tools



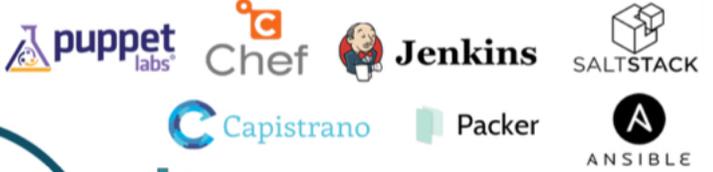
Official Repositories



Operating Systems



Configuration Management



Big Data



Service Discovery



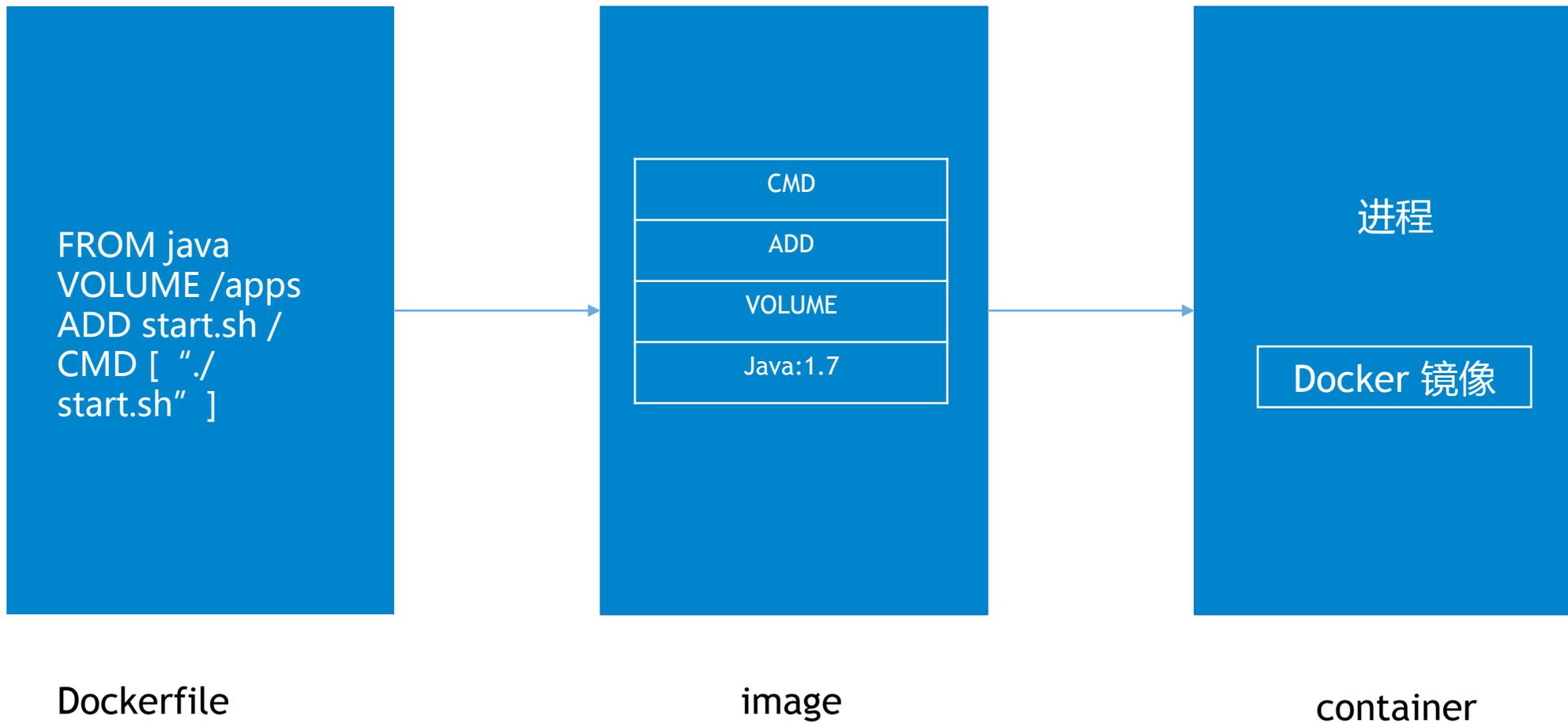
Orchestration

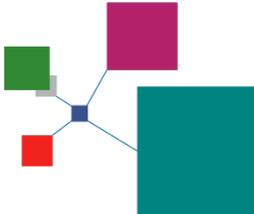


System Integrators



Docker化实践





Docker 私有 registry 扩展

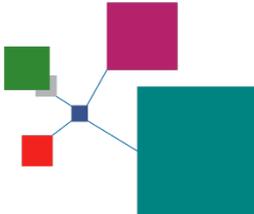
基于namespace 鉴权 /foo 单/多个

公开路径无须鉴权 /public/ubuntu:trusty

开发者仓库 /usersrv-dev/usersrv:1.1.2

测试版本布 /usersrv-test/usersrv:1.1.2

正式发布 /usersrv/usersrv:1.1.2



Docker 私有 hub扩展

角色：管理员、开发者、测试、运维

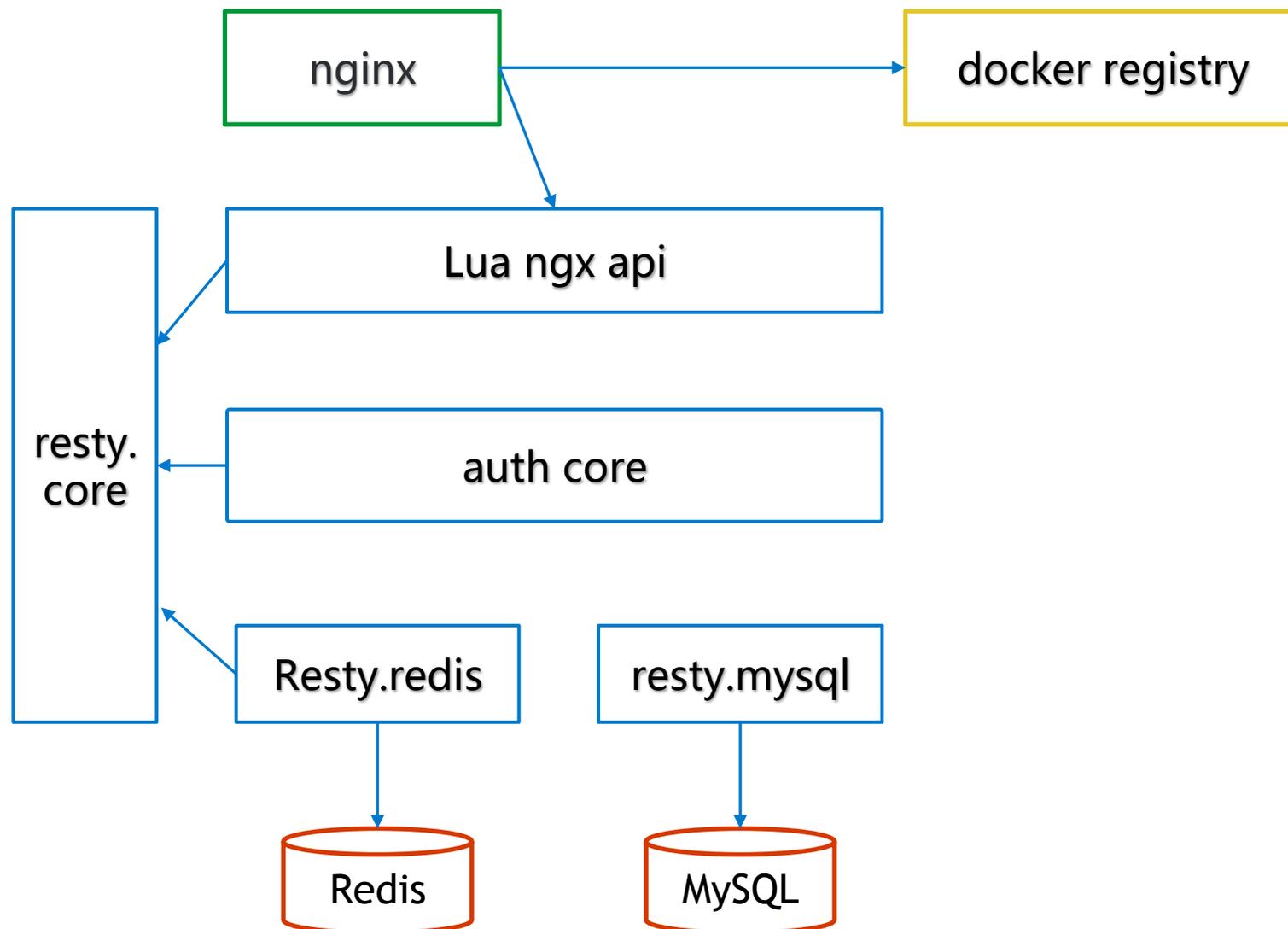
功能：

权限分配

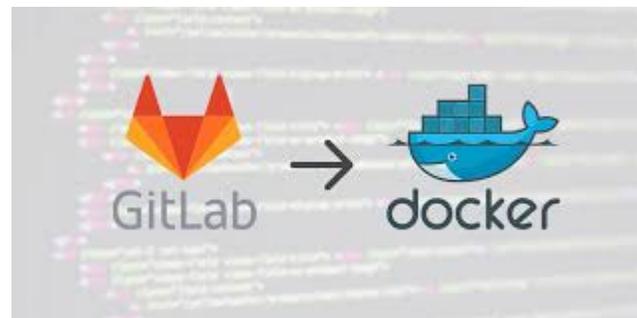
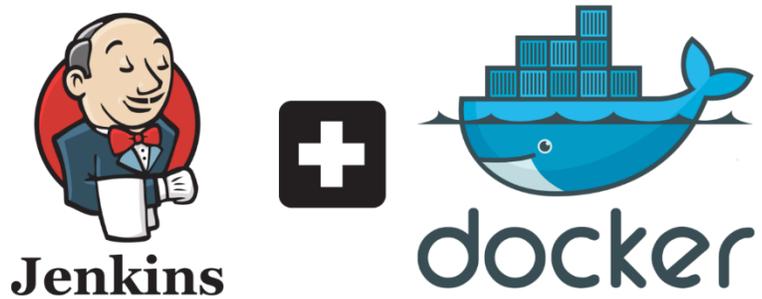
镜像搜索

镜像删除

Docker私有registry及hub的实现思路



Docker与持续集成



Docker与持续集成

master rsa-example / +

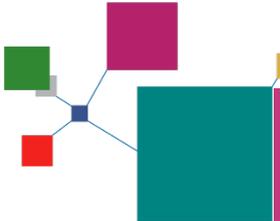
Name	Last Update
 .gitlab-ci.yml	about a month ago
 main.go	about a month ago
 main_test.go	about a month ago

 success	#96	bfc9c7a3	develop
 success	#95	a7aaac05	develop
 success	#94	a7aaac05	develop
 success	#93	66c91ee2	master
 success	#92	b16bfcac	develop

 .gitlab-ci.yml 388 Bytes

```
1  before_script:
2    - cd ../
3    - mkdir -p src
4    - cp -R rsa-example src/
5    - export GOPATH=$(pwd)
6    - cd src/rsa-example
7
8  image: golang:1.6
9
10 stages:
11   - build
12   - cleanup_build
13   - test
14   - cleanup_test
15
16 build:
17   script:
18     - go get
19     - go build
20
```

gitlab-ci runner(docker) 构建 golang 工程



Docker与持续集成

Name	Last Update
src	about a month ago
.gitignore	about a month ago
.gitlab-ci.yml	about a month ago
README.md	about a month ago
pom.xml	about a month ago

```
1 image: maven:3-jdk-7
2
3 build:
4   script: "mvn install -B"
```

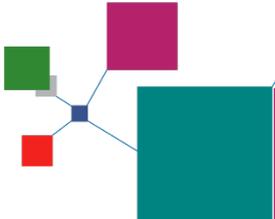
gitlab-ci runner(docker) 构建 java maven 工程

Docker与持续集成

Name	Last Update
📁 app	11 months ago
📁 e2e-tests	11 months ago
📄 .bowerrc	2 years ago
📄 .gitignore	2 months ago
📄 .gitlab-ci.yml	about a month ago
📄 .jshintrc	2 years ago
📄 LICENSE	2 years ago
📄 README.md	2 months ago
📄 bower.json	11 months ago
📄 karma.conf.js	about a month ago
📄 package.json	about a month ago

```
1 before_script:
2   - sleep 1 # give server time to start
3   image: index.changhong.io/node/node-karma:1.1
4   stages:
5     - test
6   test:
7     script:
8       - node -v && ls -al
9       - cnpm install
10      - bower install --allow-root
11      - cnpm run test-single-run
```

gitlab-ci runner(docker) 构建、测试 angularjs 工程

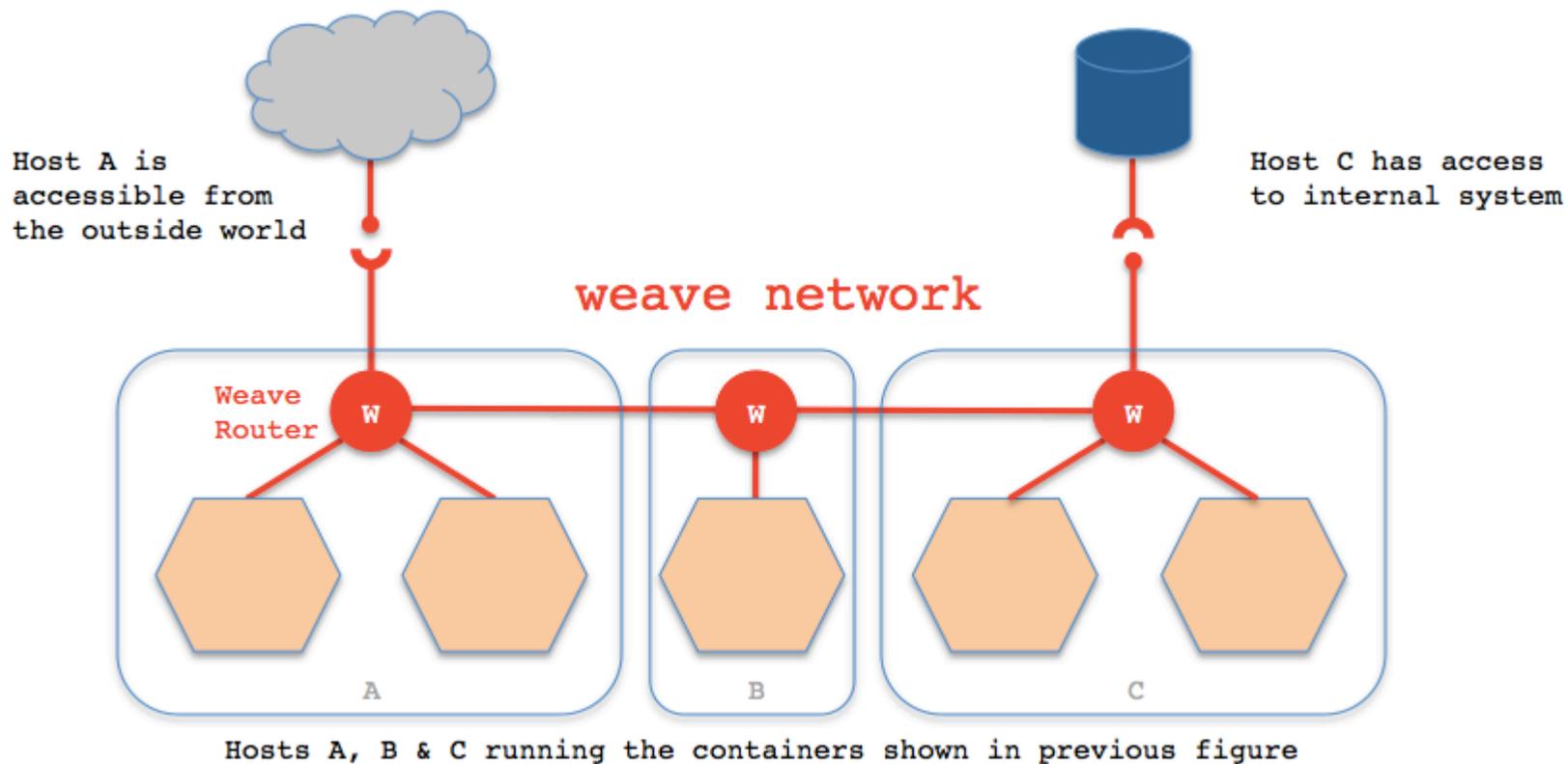


Docker网络

- none: 不为容器提供任何网络功能
- host: 与主机共享Root Network Namespace
- container: 与另一运行容器共享Network Namespace
- bridge: NAT
- overlay: bridge vxlan 实现跨主机划分子网

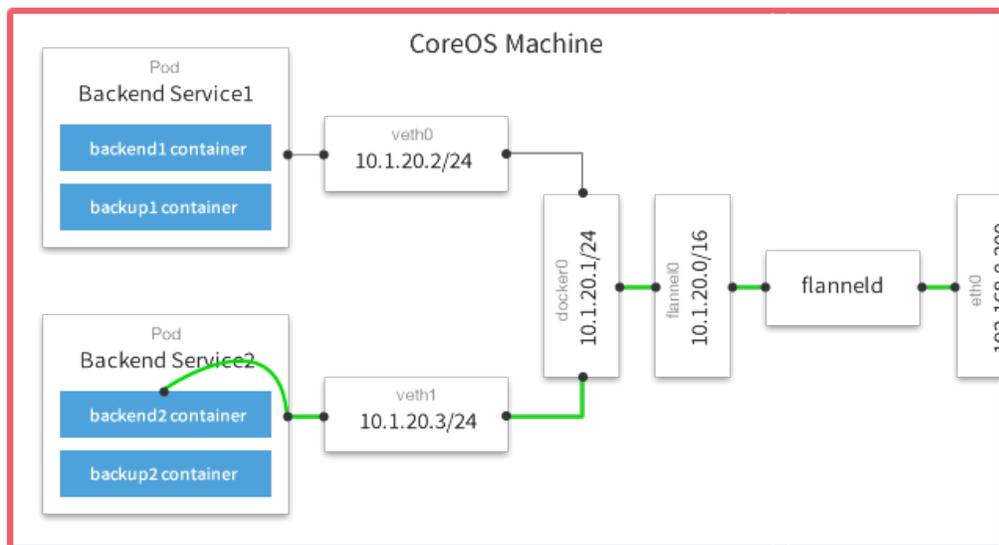
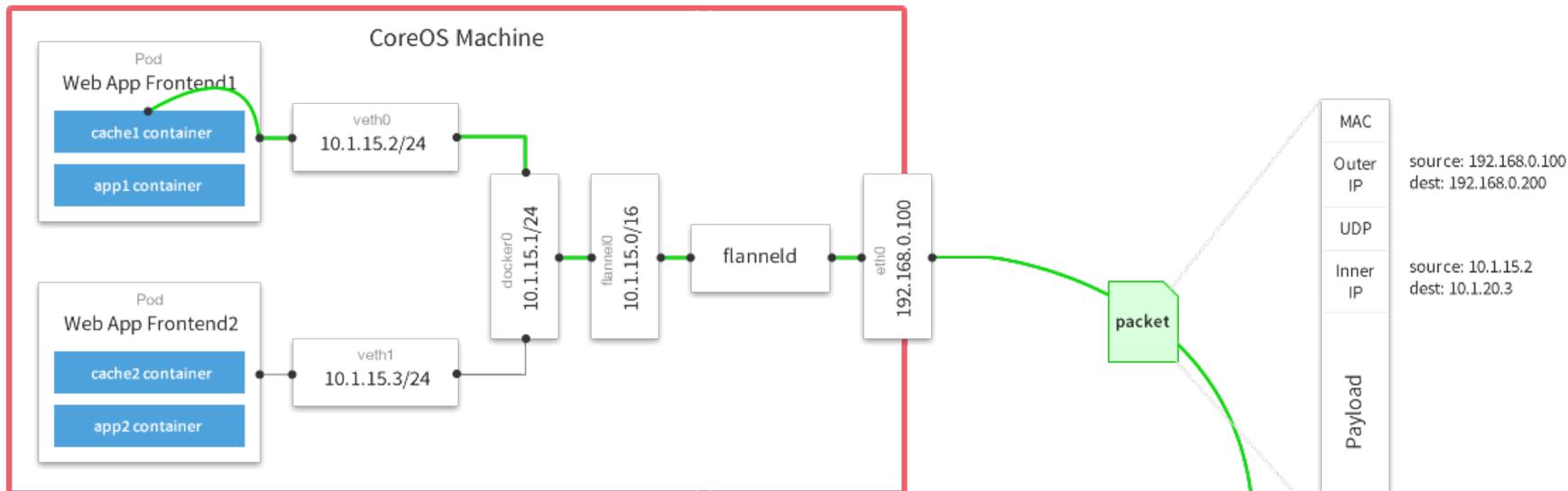


Docker网络

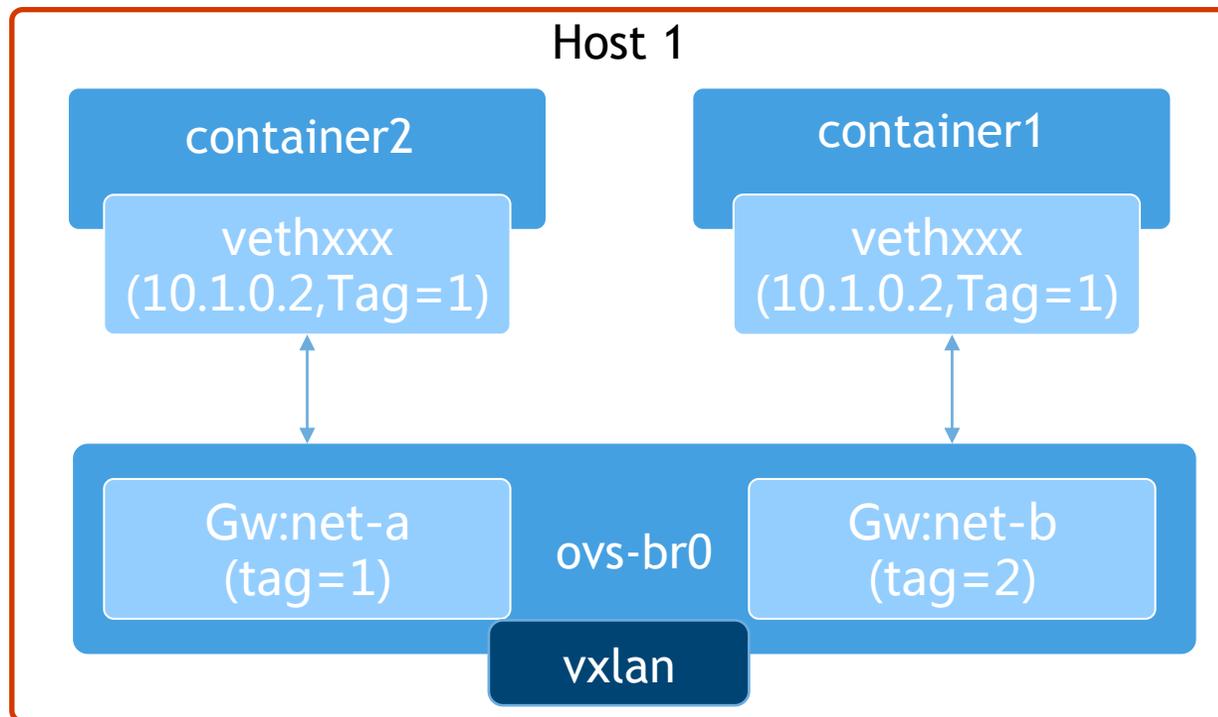


weave

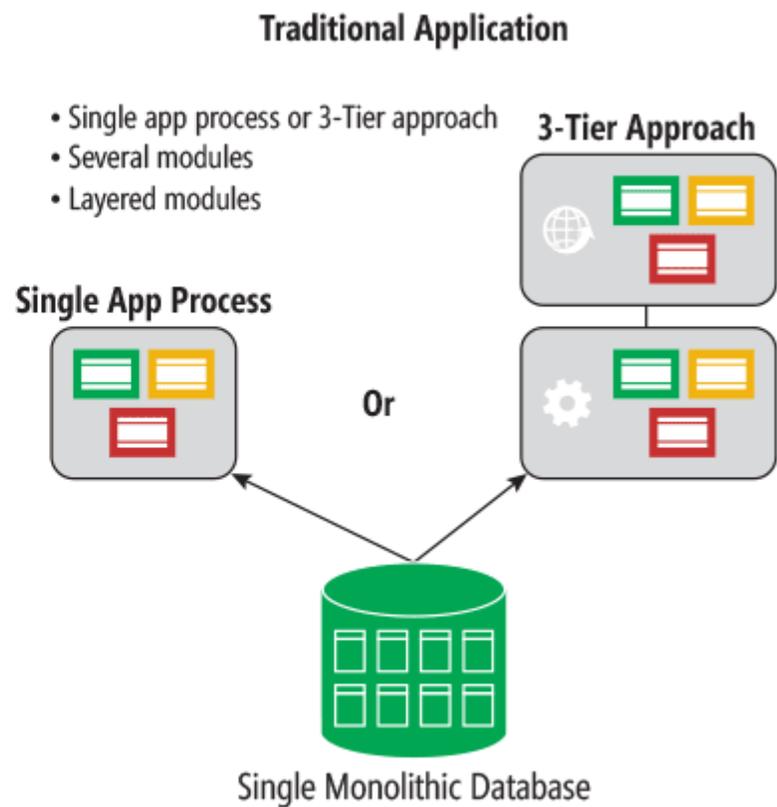
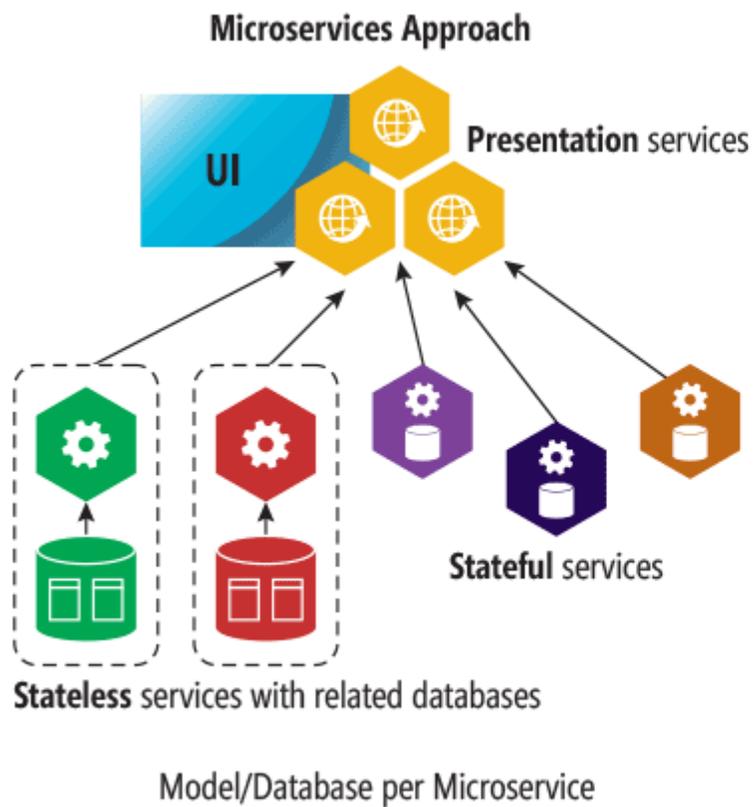
Docker网络

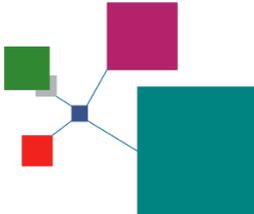


Docker网络



微服务架构vs整体架构





微服务的优缺点

优点:

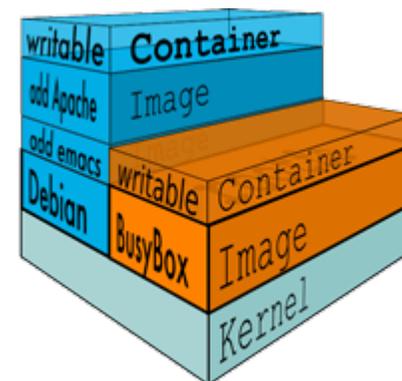
- 模块独立,低耦合
- 迭代速度快
- 技术多样性
- 容错性高
- 扩展性好
- 测试方便

缺点:

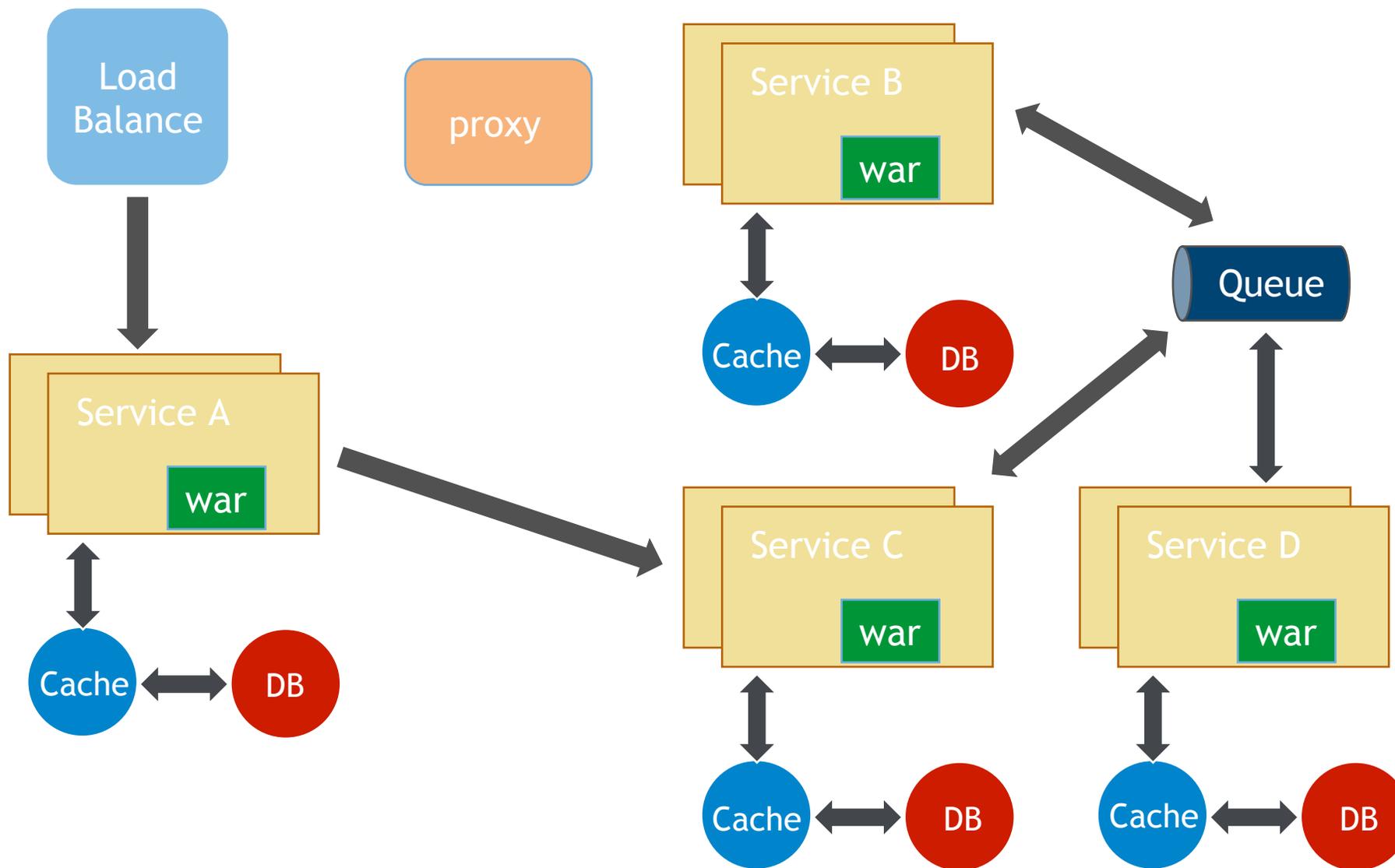
- 设计要求高
- 系统复杂度增加
- 团队要求增加
- 运维成本增加

Docker与微服务架构

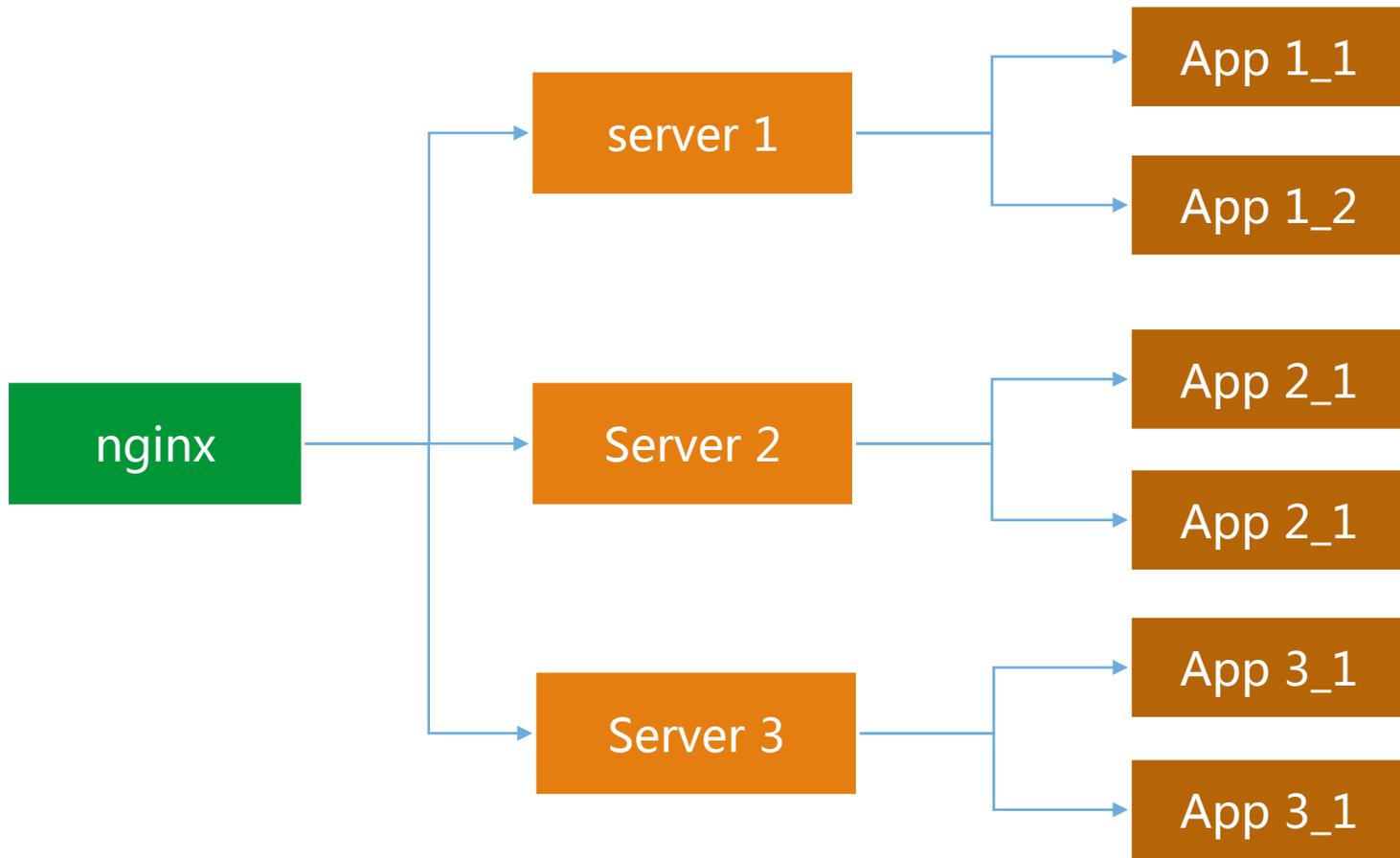
Docker	微服务
Docker镜像一致性	水平扩展副本
Docker镜像独立完整性	功能解耦
Docker与数据服务结合	数据分区



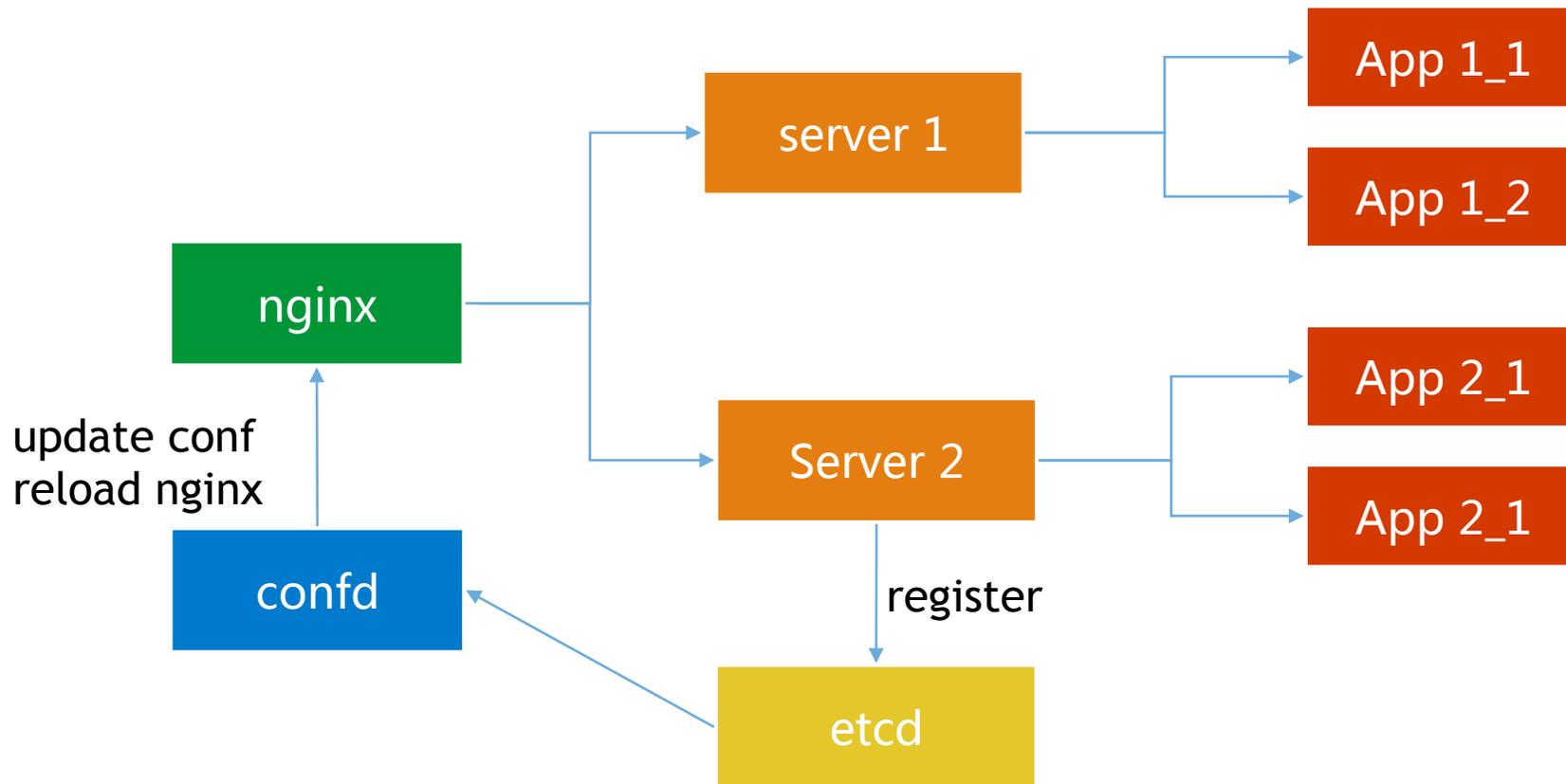
微服务设计模式



服务发现与负载均衡



服务发现与负载均衡



服务发现与负载均衡

