

# Coding-Job: 从研发到生产的容器化融合实践

Coding-Job, a fusion of dockernized Prod & Dev environments

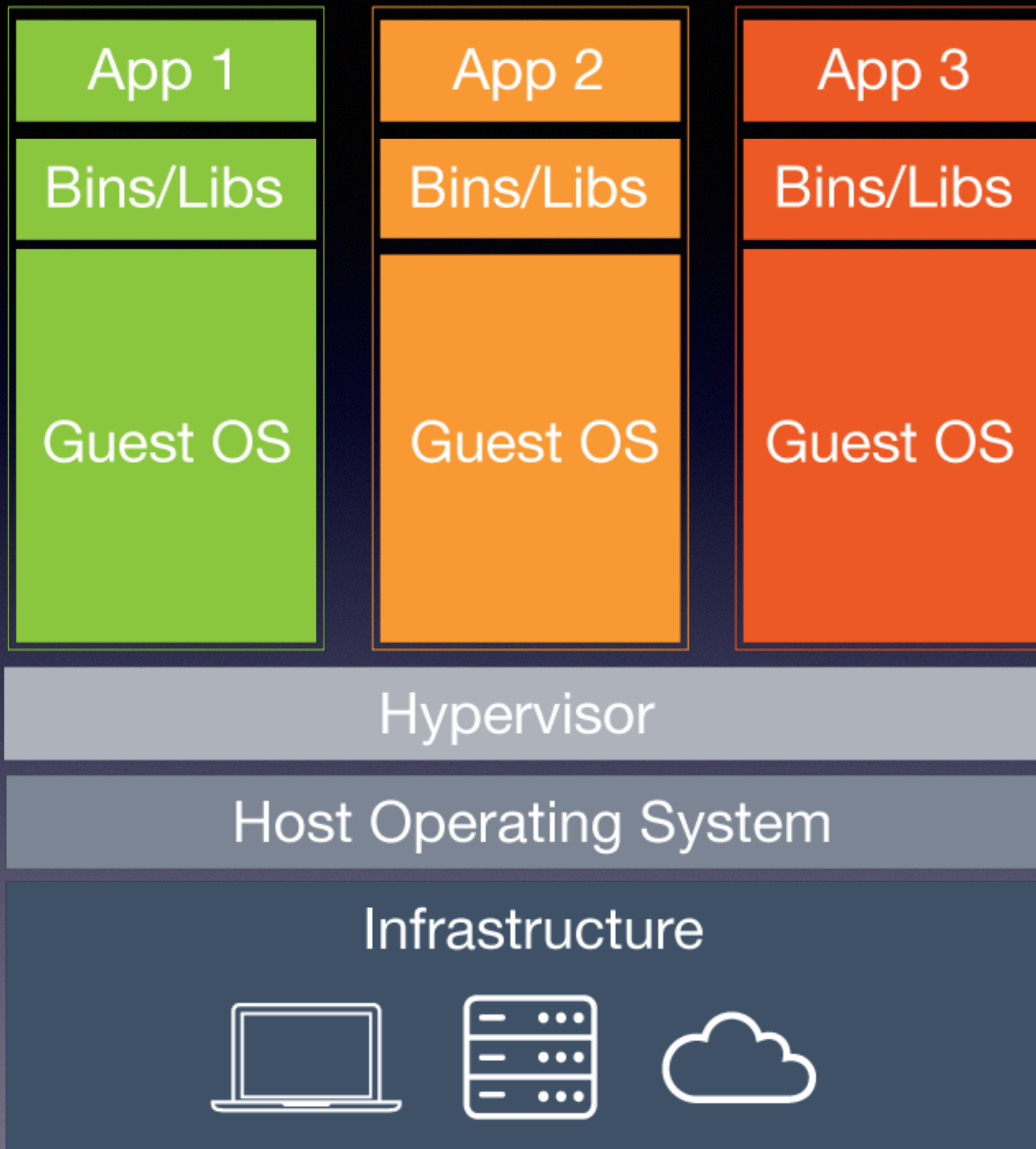
xh4n3@Coding



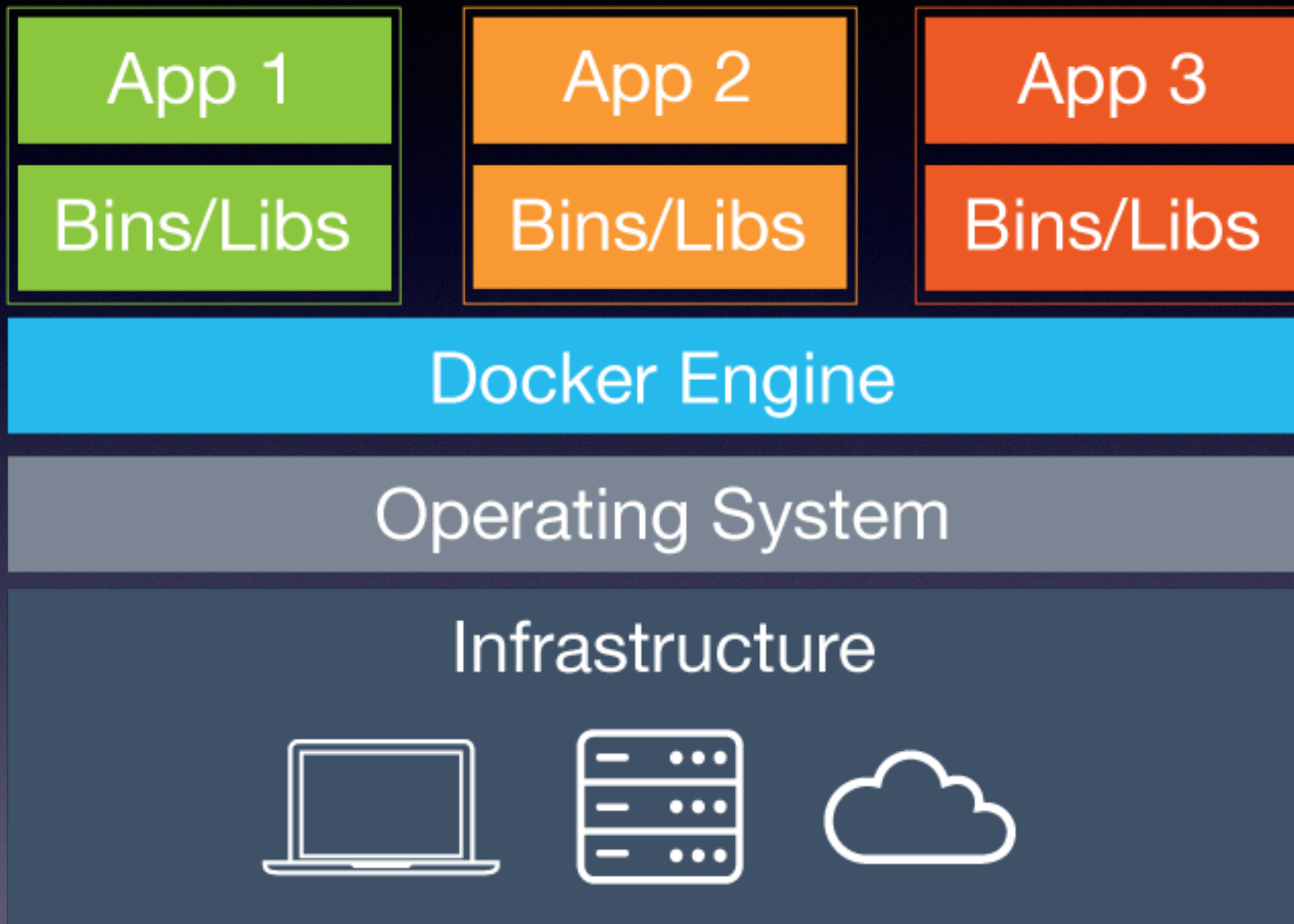
# Coding 架构的演进

结构复杂的单体系统 > 微服务 > Docker 化 > 自动化

















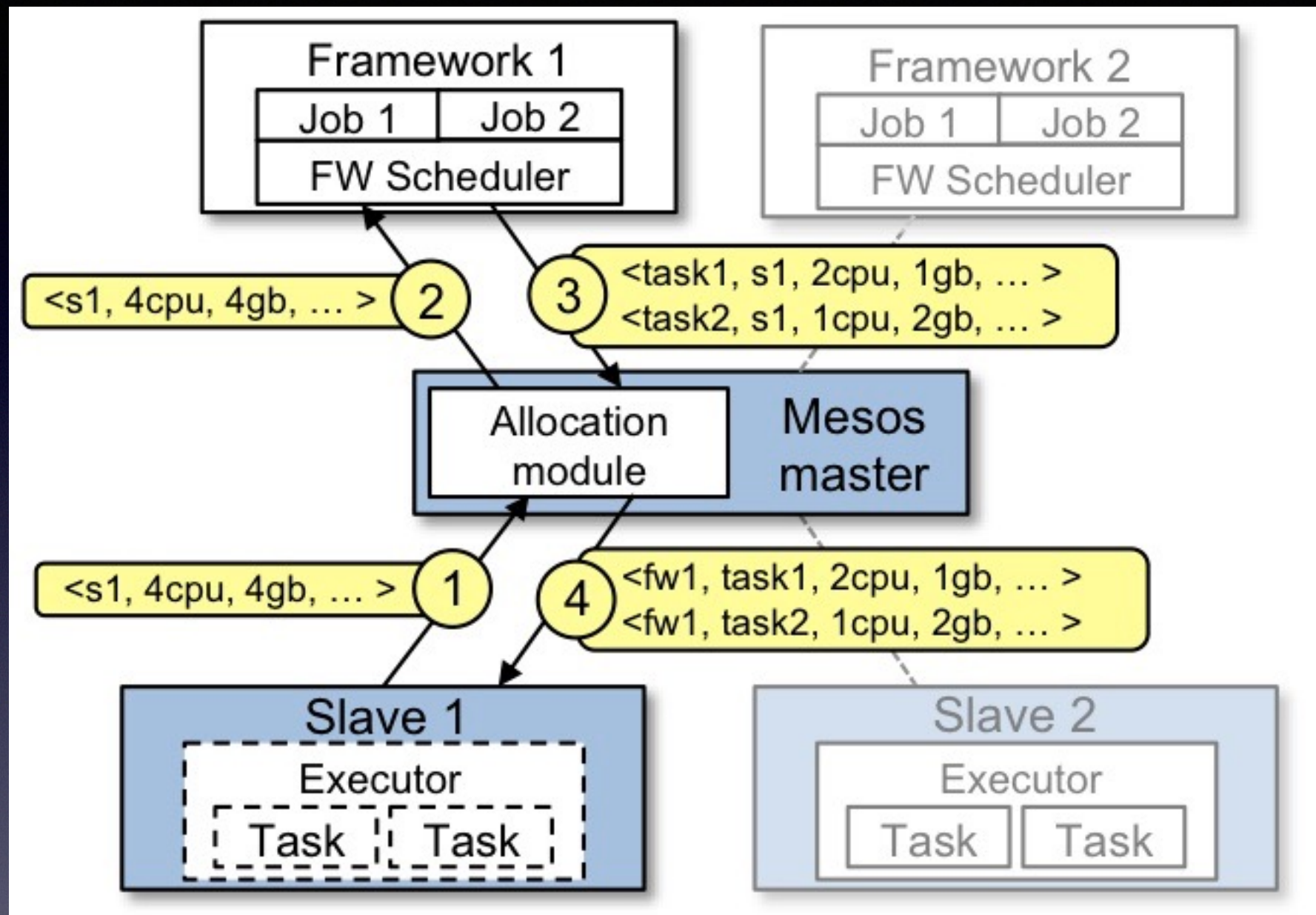




Apache  
**MESOS**™

Apache Mesos abstracts CPU, memory, storage, and other compute resources away from machines (physical or virtual), enabling fault-tolerant and elastic distributed systems to easily be built and run effectively.





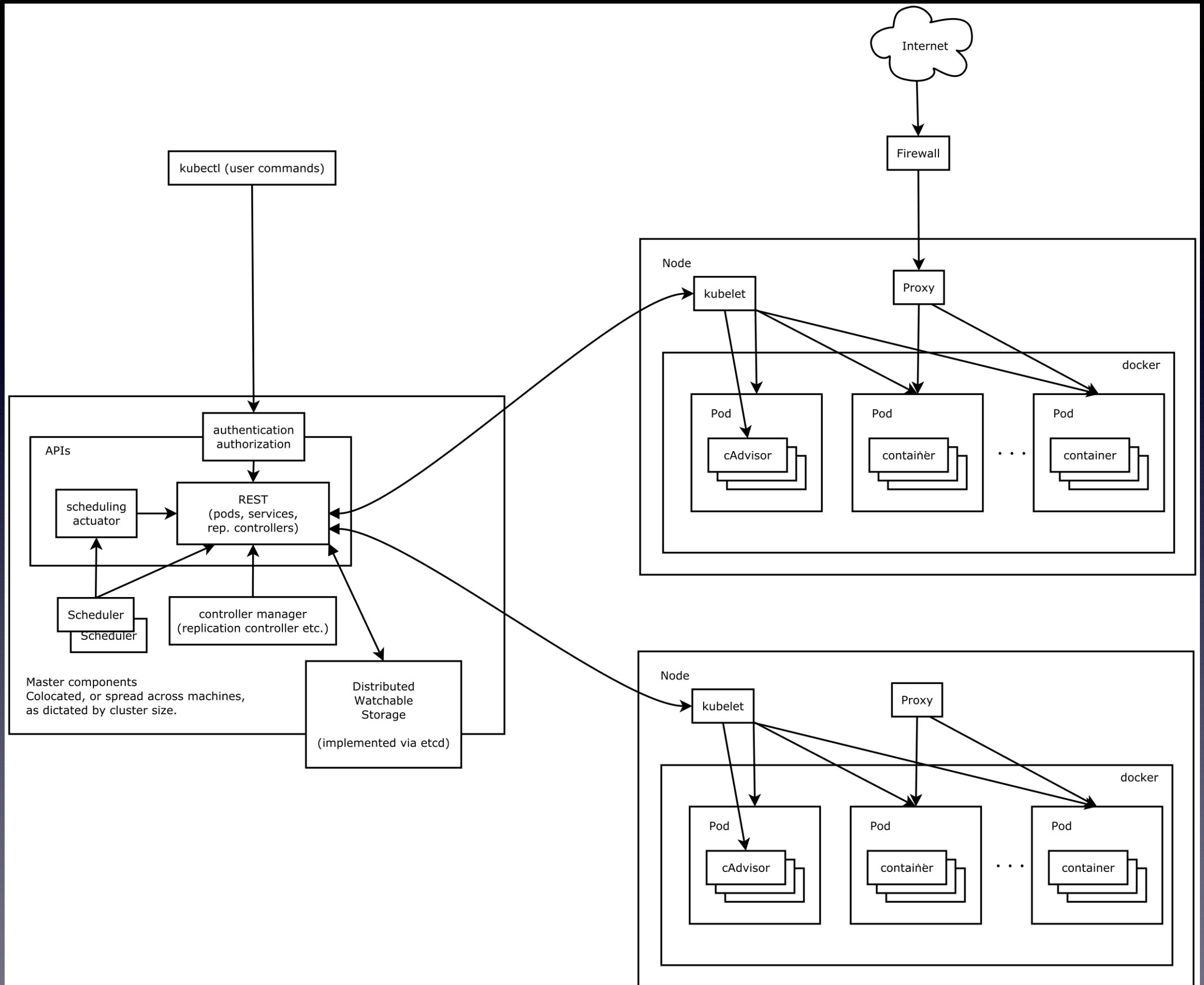
## Resource Allocation





**kubernetes** by Google







```
apiVersion: v1
kind: Pod
metadata:
  name: nginx
spec:
  containers:
  - name: nginx
    image: nginx
    ports:
    - containerPort: 80
```

## Pod Definition



```
apiVersion: v1
kind: ReplicationController
metadata:
  name: nginx-controller
spec:
  replicas: 2
  # selector identifies the set of Pods that this
  # replication controller is responsible for managing
  selector:
    app: nginx
  # podTemplate defines the 'cookie cutter' used for creating
  # new pods when necessary
  template:
    metadata:
      labels:
        # Important: these labels need to match the selector above
        # The api server enforces this constraint.
        app: nginx
    spec:
      containers:
        - name: nginx
          image: nginx
          ports:
            - containerPort: 80
```

# Replication Controller



You'll never know...





# Coding-Job

- 预定义所有任务配置
- Service/Job/Task

```
service: "core"
jobs:
  - name: "core-nginx"
    tasks:
      - name: "core-nginx"
        image: "core-nginx:48b58c1-dirty"
        run_on_host: "host-1"
        port: 0
        docker_config:
          docker_hostconfig:
            Binds:
              - "/data:/data/:rw"
  - name: "coding-email"
    tasks:
      - name: "coding-email"
```



# Coding-Job CLI

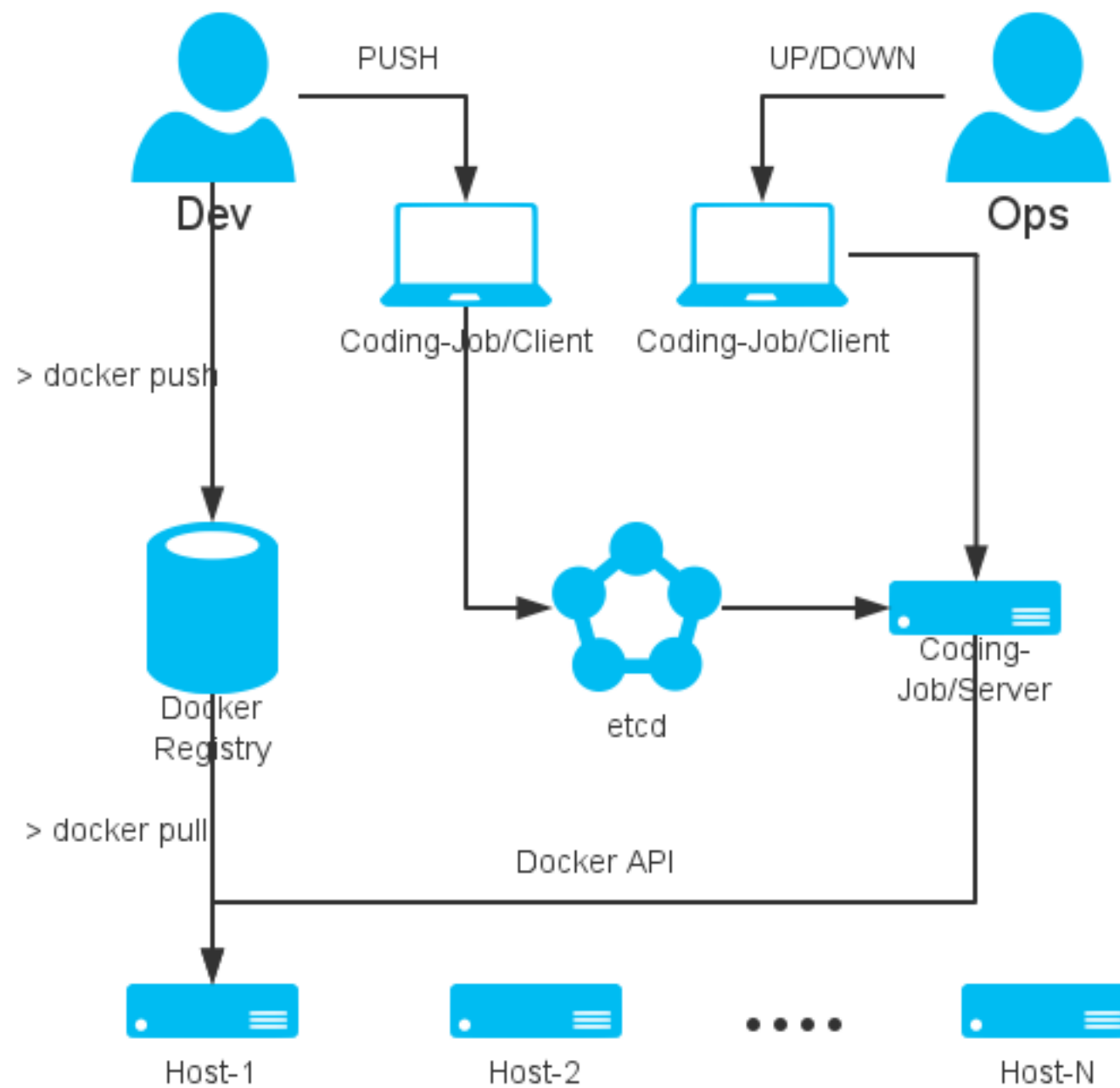
- UP / DOWN / UPDATE / RELOAD / PUSH / LIST



# Coding-Job Web

- STATUS / INSPECT / LOG / HISTORY





## Coding-Job Topology



No Demo Today  
(T\_T)



```
xh4n3@dev:~% ./coding-job
```

```
Usage: ./coding-job [OPTIONS] COMMAND [arg...]
```

A tool for manage the containers of coding.

#### Options:

- dev\_mode  
development mode for front-end devs
- dns\_suffix string  
dns suffix for job.go (default ".coding.local")
- docker\_registry string  
docker registry for job.go (default "docker-registry")
- etcd\_cluster string  
address for etcd cluster (default "http://127.0.0.1:2379")
- host string  
job server for action commands (default "127.0.0.1:2017")
- jobs string  
ascii protobuf file for whole production (default "jobs.yml")
- v  
verbose mode, prints configurations

#### Commands:

- |        |  |
|--------|--|
| reload | Reload job tasks (Restart one/all tasks with newest configs) |
| up     | Up a job ( Start all tasks )                                 |
| down   | Down a job ( Stop all tasks )                                |
| list   | List all jobs  |
| server | Start as Server  |
| push   | Push rendered jobs yaml file to etcd                         |
| update | Update job tasks ( Pull image and Restart one/all tasks )    |



# WebUI - Service

Coding-Job    Service    Job    Container    Node

## Service

all

coolservice

Job ⌵	Tasks ⌵	Running ⌵	Outdated ⌵
cooljob	<div>Replications needed for critical job</div> <div>❗ 1</div>	1	0
redis	<div>❗ 1</div>	1	0



# WebUI - Container

Coding-Job  Service  Job  Container  Node

## Container

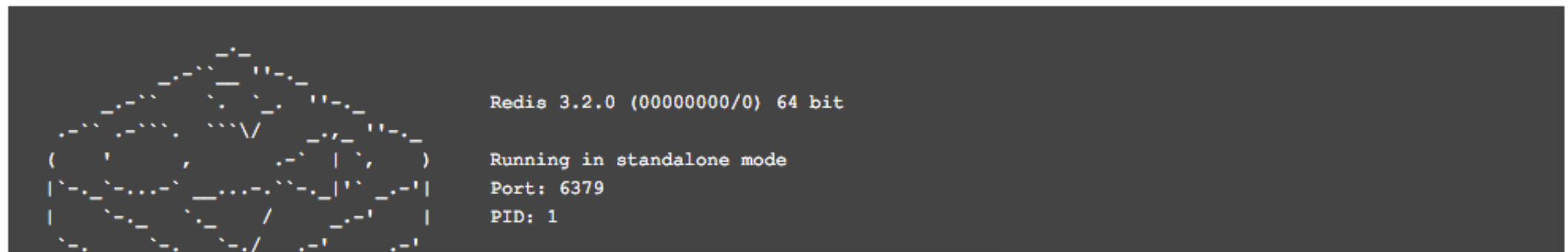
✓ 1 containers found.

Container	NodeName ↕	ImageName ↕	Status	Detail
/boring_hamilton	docker.prod	docker.controller/redis:1	Up 2 hours	<a href="#">Log</a>
<b>Container ID</b> b511f94fb1f6c4601387ac3c9fc19d7a27edc0c6adbf9a773d8658ed674227a4				
<b>Node</b> docker.prod				
<b>Command</b> redis-server				

Refresh Per 10s



Refresh Now






# WebUI - Nodes

Coding-Job    Service    Job    Container    Node

## Node

 1 nodes available.

Node	IP ⇅	Tasks ⇅	Running ⇅	CPU ⇅	Memory ⇅	Version ⇅	Status ⇅	Detail
docker.prod	docker.prod	5	2	1	975M	1.11.1	UP	



## CLI - list

```
xh4n3@dev:~% ./coding-job -host=docker.controller:2017 list
```

SERVICE	JOB	TASK	CONFIGURED IMAGE	STATUS
coolservice	cooljob	cool-1	docker.controller/coolproject:2	Up About an hour
coolservice	redis	redis-1	docker.controller/redis:1	Up 2 hours



- 一分钟发布新组件
- 五分钟启动整个 Coding
- 透明的线上环境



Q&A



# References

- <http://mesos.apache.org/documentation/latest/architecture/>
- <https://github.com/kubernetes/kubernetes/blob/release-1.1/docs/design/architecture.md>