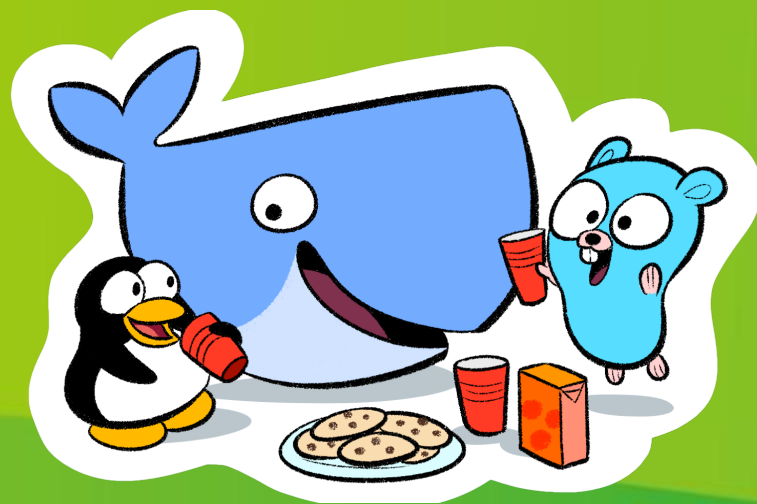
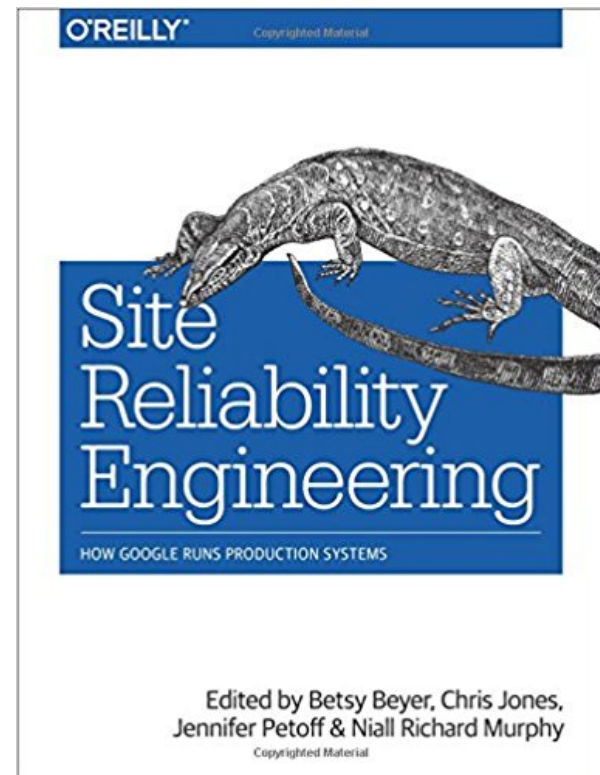


mesos container在360的应用

李冬 Mar.2018 360-商业广告



Who Am I?



Where is our system?

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玫瑰 花语 万年青 百合

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相关网站 展开



Where is our system?

Why container?



- data center migration
- failover
- operating system
- production environment
- test
- service expansion
- resource utilization

Build , Ship , and Run Any App ,
Anywhere

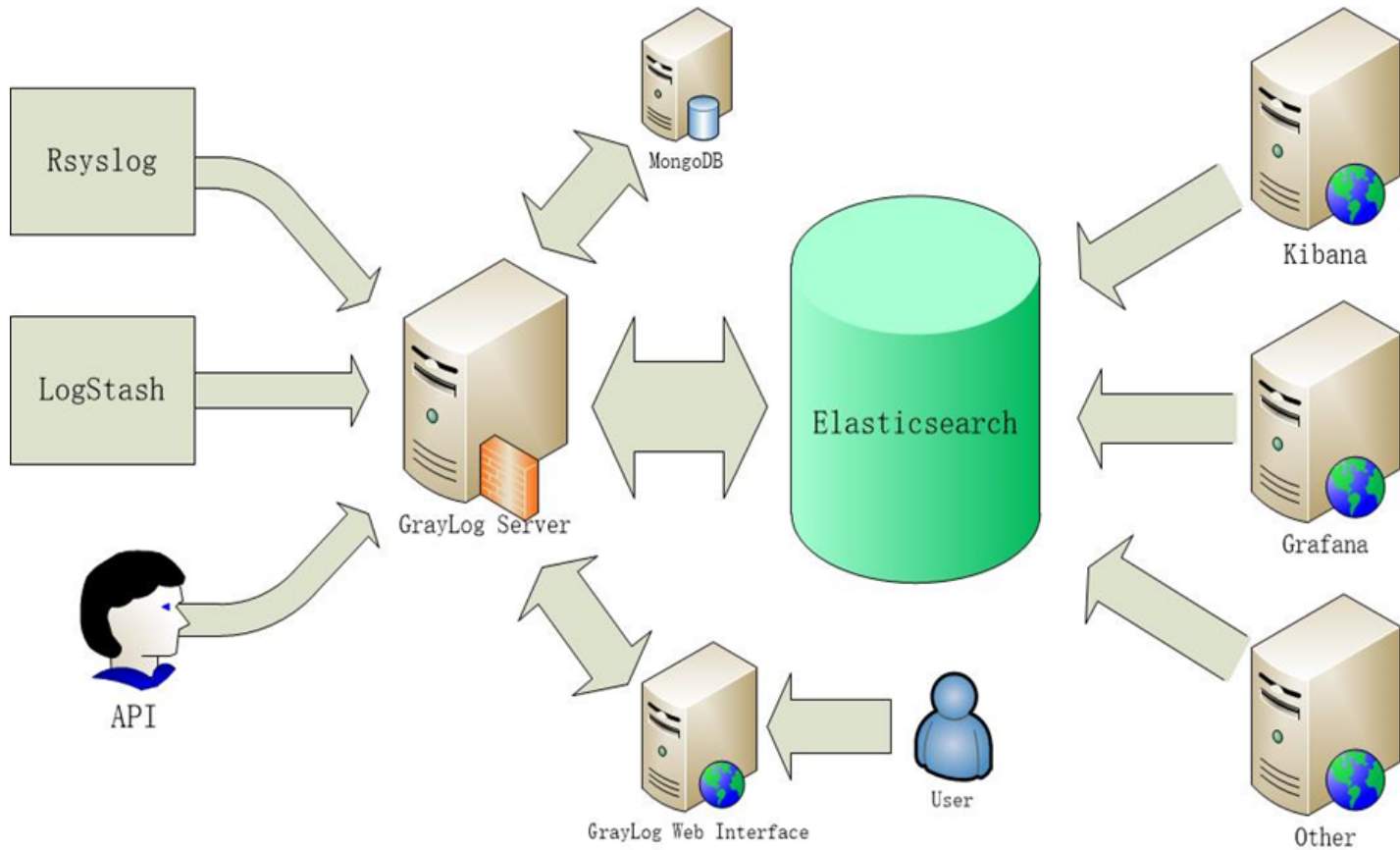


Problems with service dockerization





Where is my debug logs?



network performance?

| Client | Server | Throughput, tps | Ratio to "direct-direct" |
|-----------------------|-----------------------|-----------------|--------------------------|
| Direct | Direct | 282780 | 1.0 |
| Direct | Host | 280622 | 0.99 |
| Direct | Bridge | 250104 | 0.88 |
| Bridge | Bridge | 235052 | 0.83 |
| overlay | overlay | 120503 | 0.43 |
| Calico overlay | Calico overlay | 246202 | 0.87 |
| Weave overlay | Weave overlay | 11554 | 0.044 |

docker registry?

| | docker registry(原有) | docker stark(目前) |
|--------------|---------------------|------------------|
| 多机房部署并保证数据同步 | NO | YES |
| 高可用 | NO | YES |
| 数据可靠性 | NO | YES |
| 认证 | NO | YES |

How to write a local file
How to store persistent

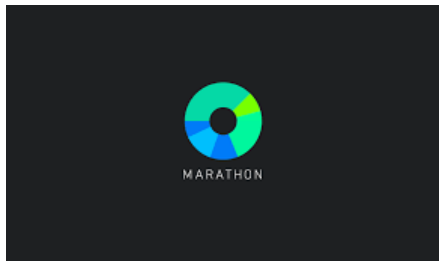


Registration and discovery of services

We're   Apache
Zookeeper

 etcd OR

 CONSUL



Mesos-dns

Docker scheduler?
Docker data loading?

Why Mesos?

Backgroud

A variety of distributed computing frameworks



Problem

A variety of distributed computing frameworks

Resource utilization, operation and maintenance costs, data sharing

Want to run multiple applications in a single cluster

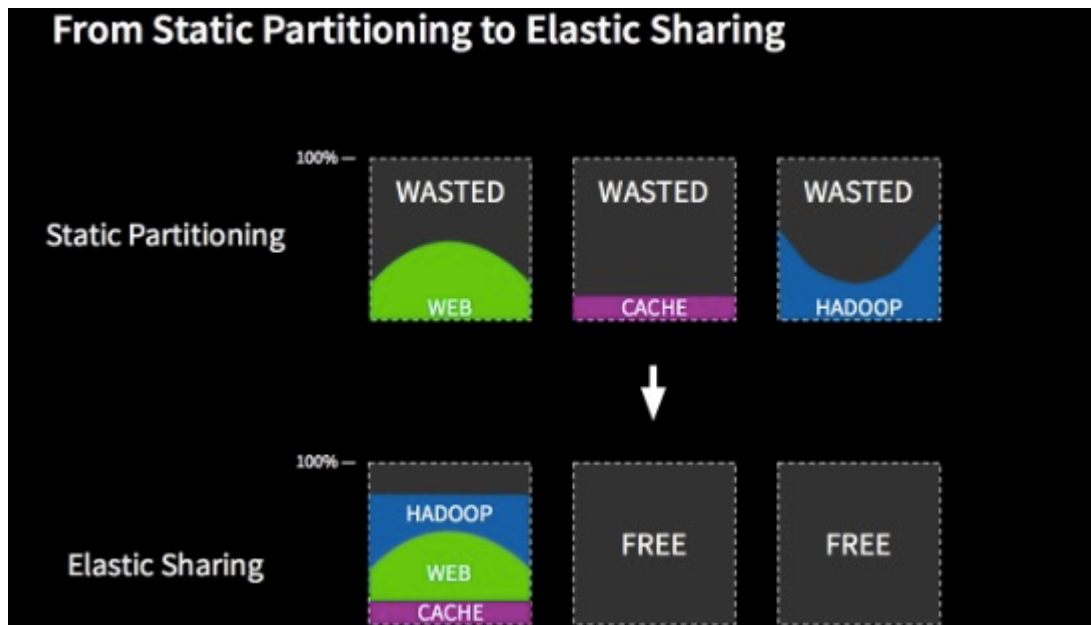
- >>..to efficient shared hardware resources

- >>..to simplify scheduling logic

- >>..as much compatibility and scalability as possible

Benefits of Mesos

- Effectiveness

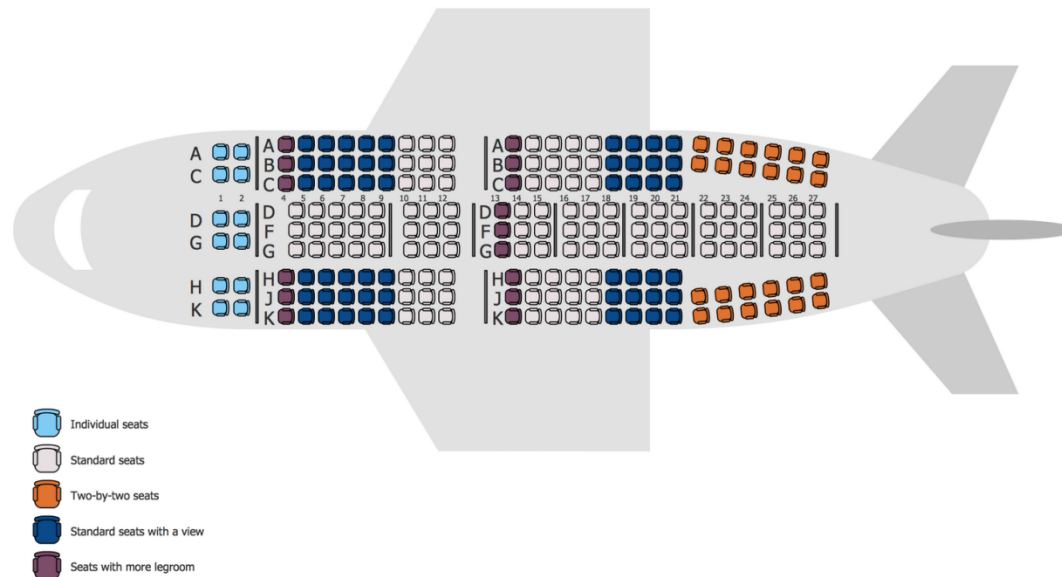


Benefits of Mesos

- **Agility**

Mesos : Resource offers

>> Quickly use the resources available in the cluster

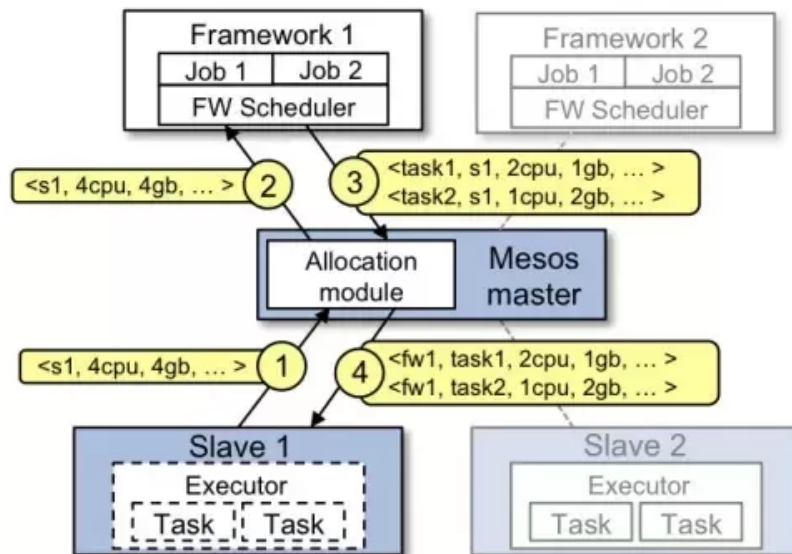


Benefits of Mesos

- Expandability

Mesos : Two-level scheduling

>>keep mesos simple

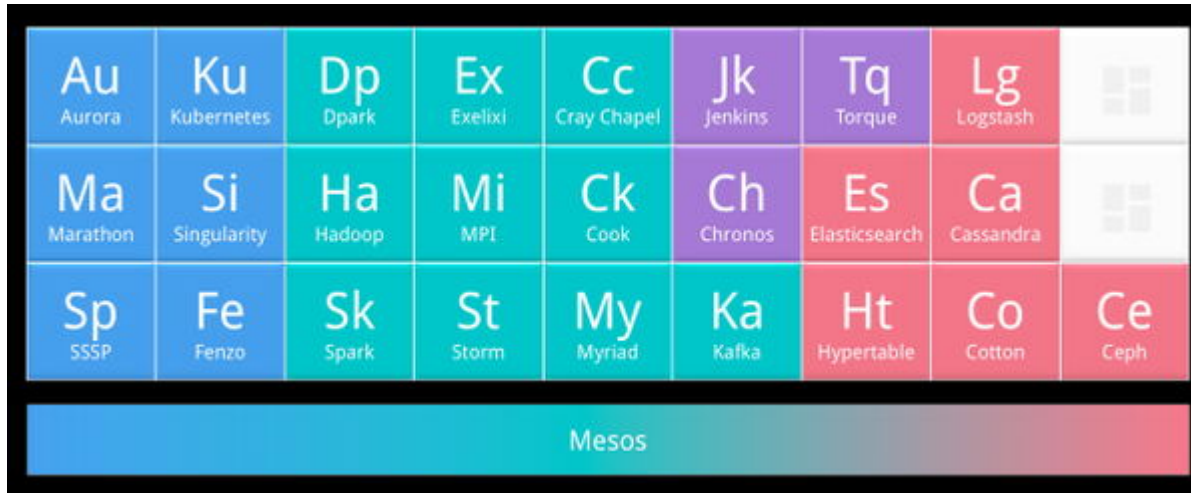


Benefits of Mesos

- **Modularization**

Mesos : Restful API

>>Free to add new framework



Outline

- Mesos Goals
- Architecture
- Implementation
- Results

Mesos Goals

High utilization of resources

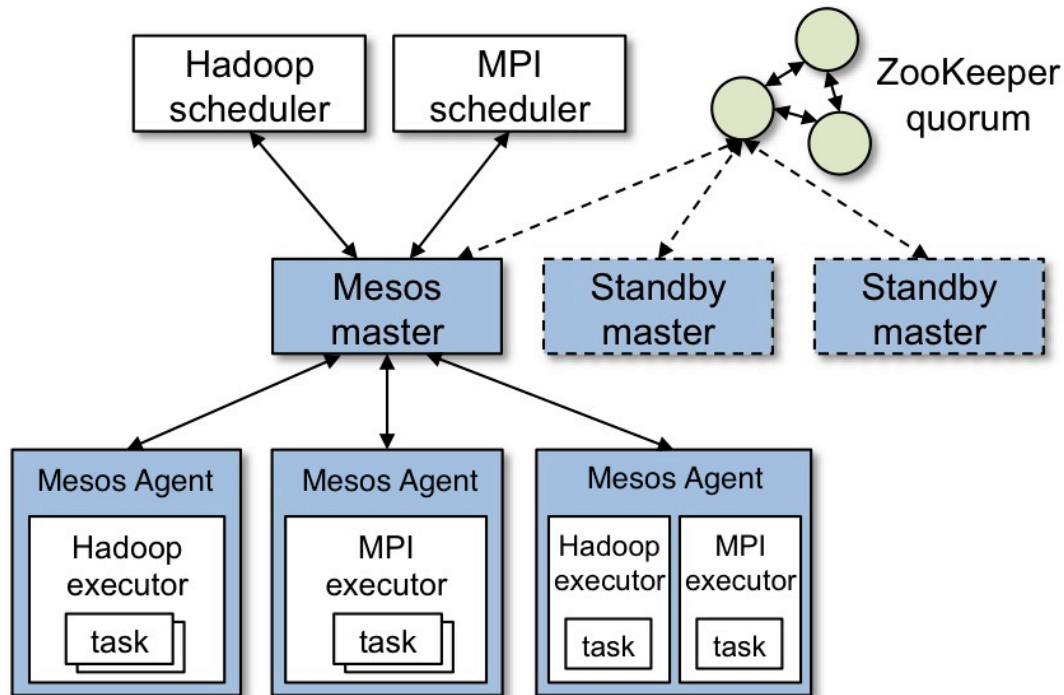
Support diverse frameworks(current & futures)

Scalability to 45,000's of nodes(Twitter)

Reliability in face of failures



Mesos Architecture



Implementation

20000+ lines of C++

Master failover using ZooKeeper

Frameworks ported

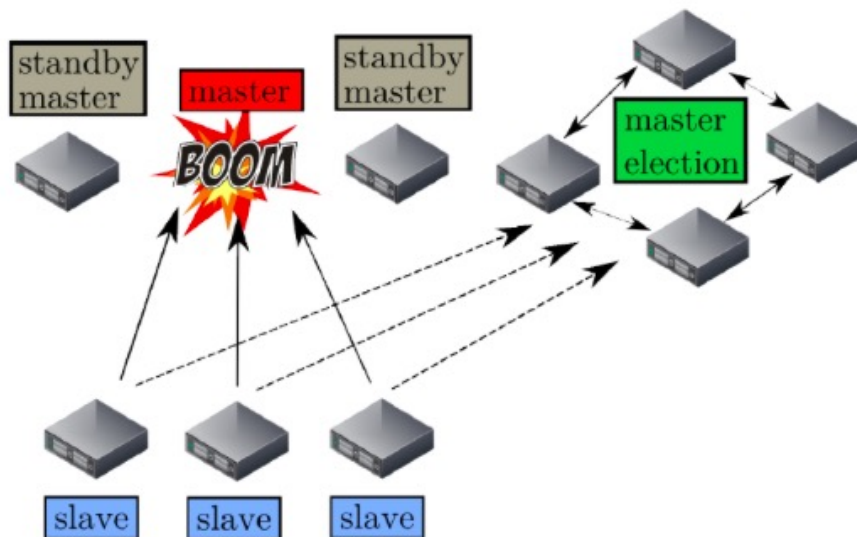
Open source in Apache Incubator

Fault Tolerance

Mesos master has only soft state: list of currently running frameworks and tasks

Rebuild when frameworks and slaves re-register with new master after a failure

Result: fault detection and recovery in ~10 secs



Other benefits of Mesos

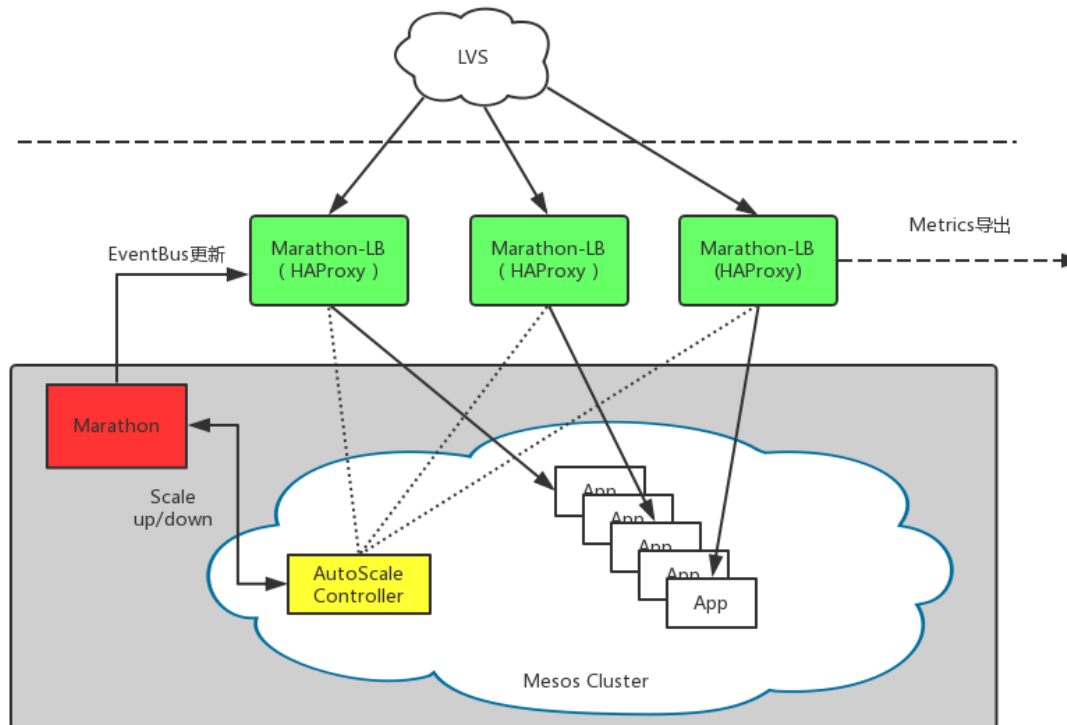
Framework: Marathon

- Long Running Job
- Service Discovery
- Health Check
- Event Notice
- WebUI
- RestAPI
- Constraints
- Labels
- Persistent Volume
- Readiness Check
- taskKillGracePeriodSeconds
- Unified Containerizer and GPU Support



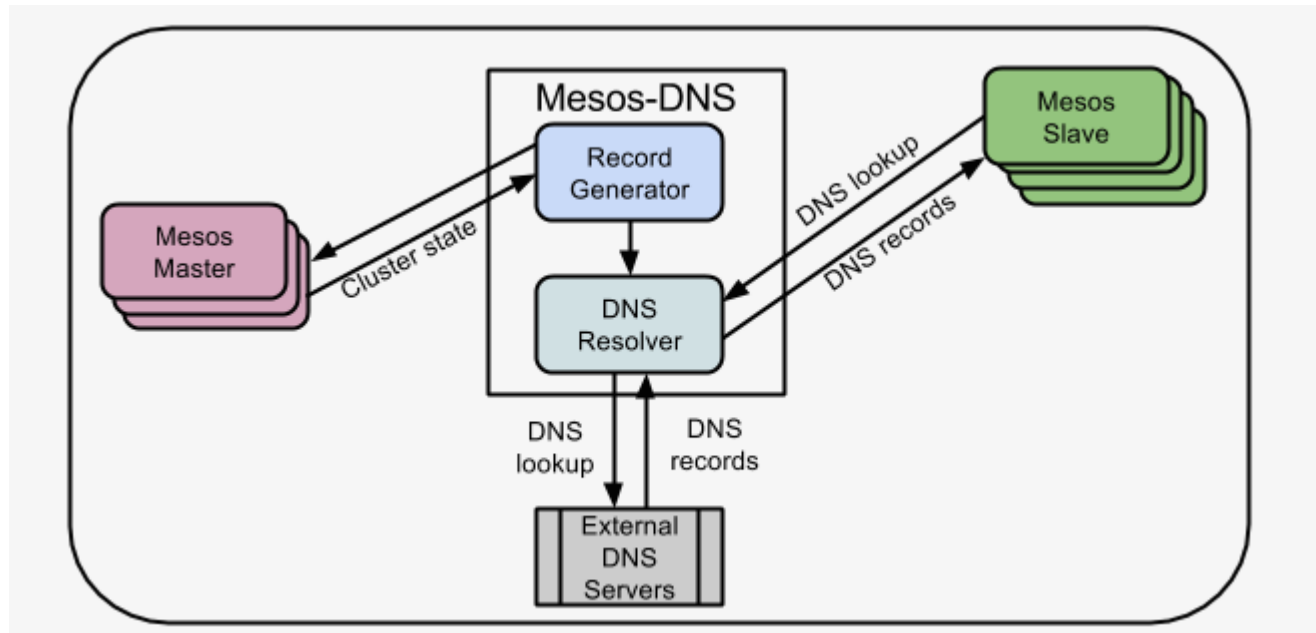
Other benefits of Mesos

Marathon-lb: Haproxy-based service discovery



Other benefits of Mesos

Mesos-DNS: DNS-based service discovery for Mesos



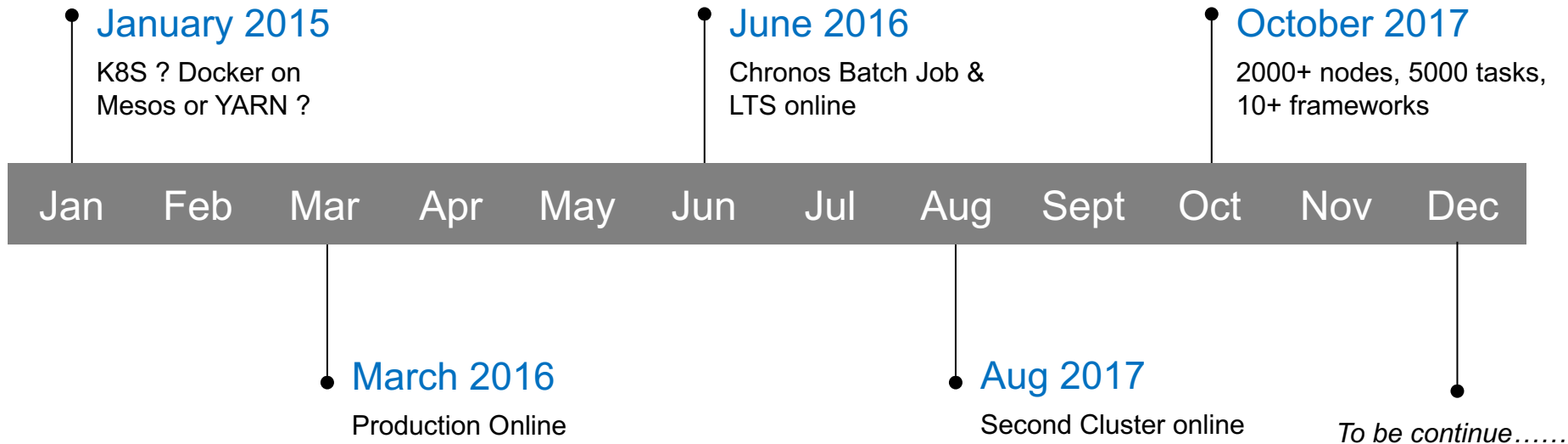
Mesos VS YARN

Mesos VS Kubernetes

mesos/container in 360



Timeline



Solution

- Deployment
- Expansion
- Failover
- Downgrade
- Service discovery
- Resource Sharing

Storm service containerization

>> Millions of access per second

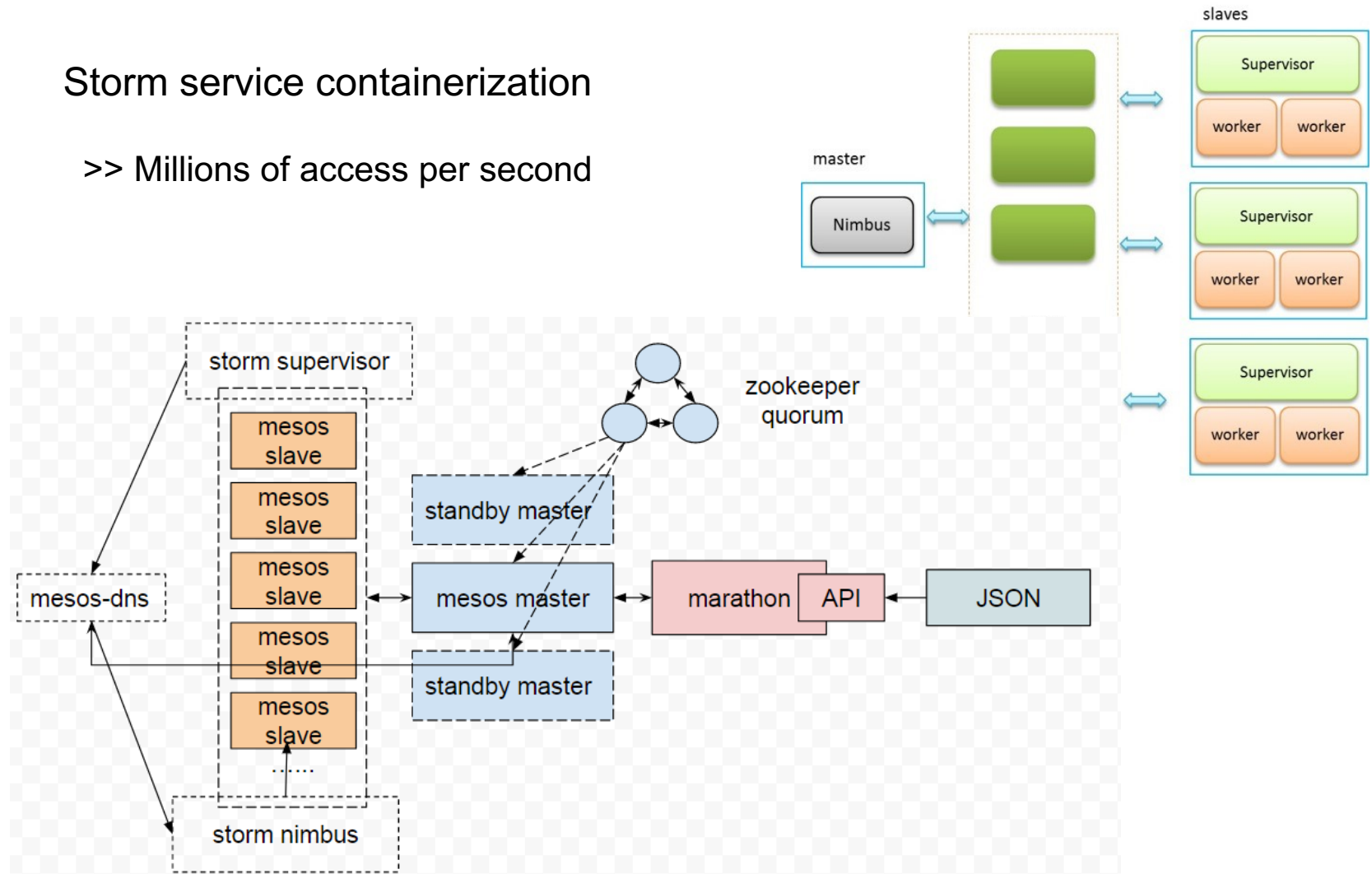
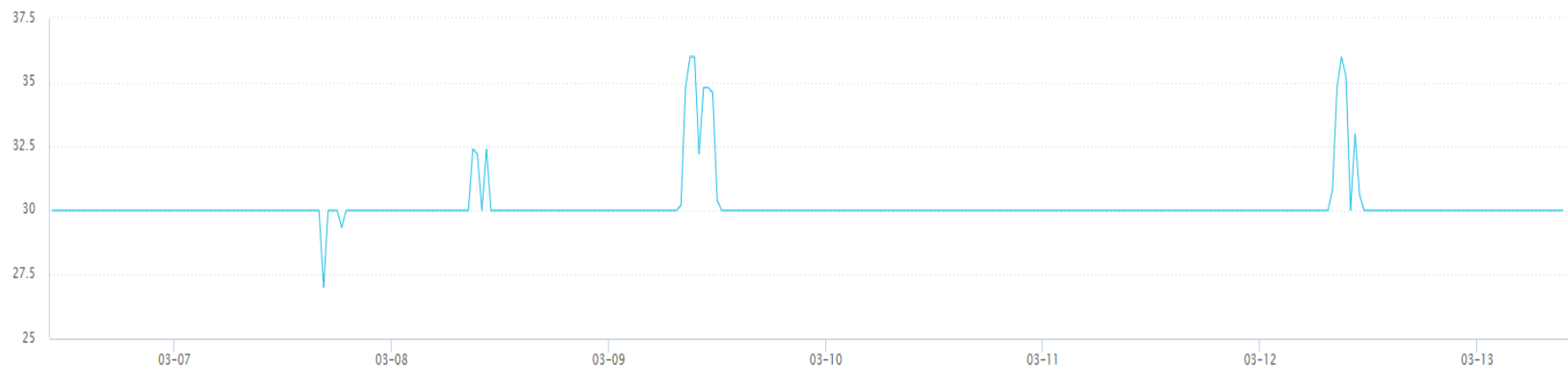


Image service containerization

单位: num



Other service containerization

Web service

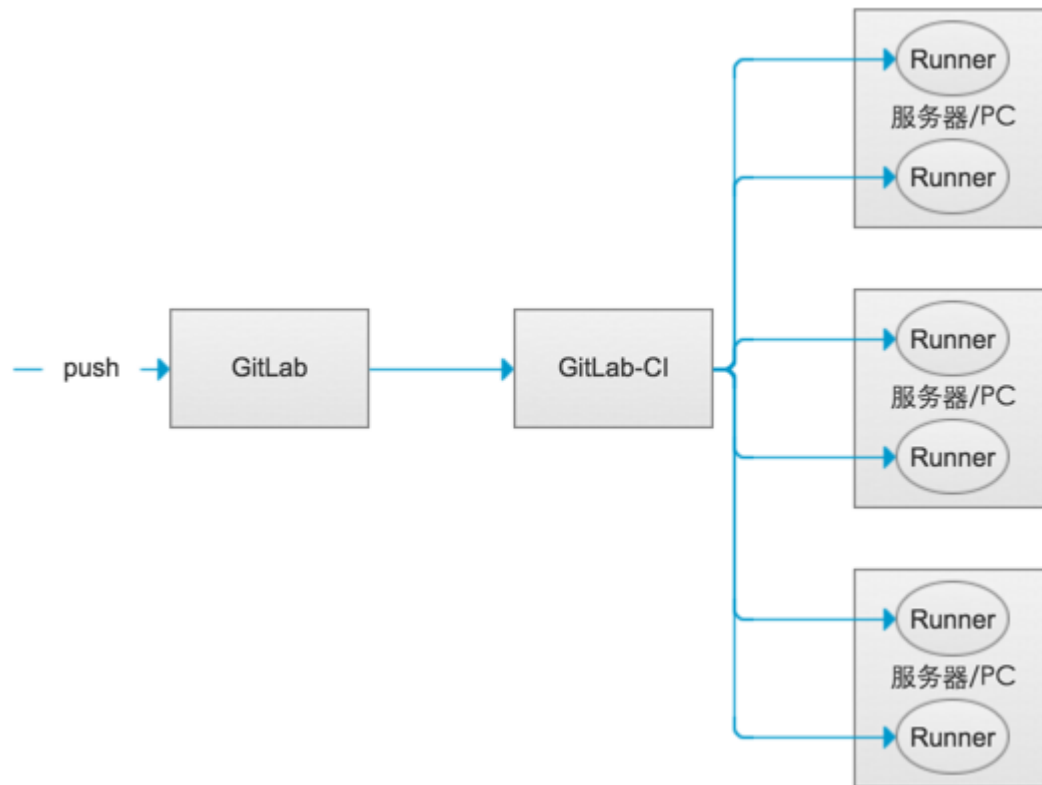
Aerospike

Marathon-lb

Kafka mirrormaker

Redis

Stateless service.....



To be continue.....

Container volumes --- cephfs

Container network --- calico

Machine learning on mesos

Thank you!

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