

# 高性能分布式PaaS解决方案

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# Geekbang>

极客邦科技

全球领先的技术人学习和交流平台

扫我，码上开启新世界



# Geekbang>

InfoQ | EGO | StuQ

## InfoQ

专注中高端技术人员  
的社区媒体

## EGO

EXTRA GEEKS' ORGANIZATION  
NETWORKS

高端技术人员  
学习型社交网络

## StuQ

实践驱动的IT职业  
学习和服务平台

**InfoQ** new

促进软件开发领域知识与创新的传播

**ArchSummit**  
全球架构师峰会

# 实践第一 案例为主

时间：2015年12月18-19日 / 地点：北京·国际会议中心

欢迎您参加ArchSummit北京2015，技术因你而不同



ArchSummit北京二维码

**QCon**  
全球软件开发大会

**[北京站]**

2016年04月21日-23日



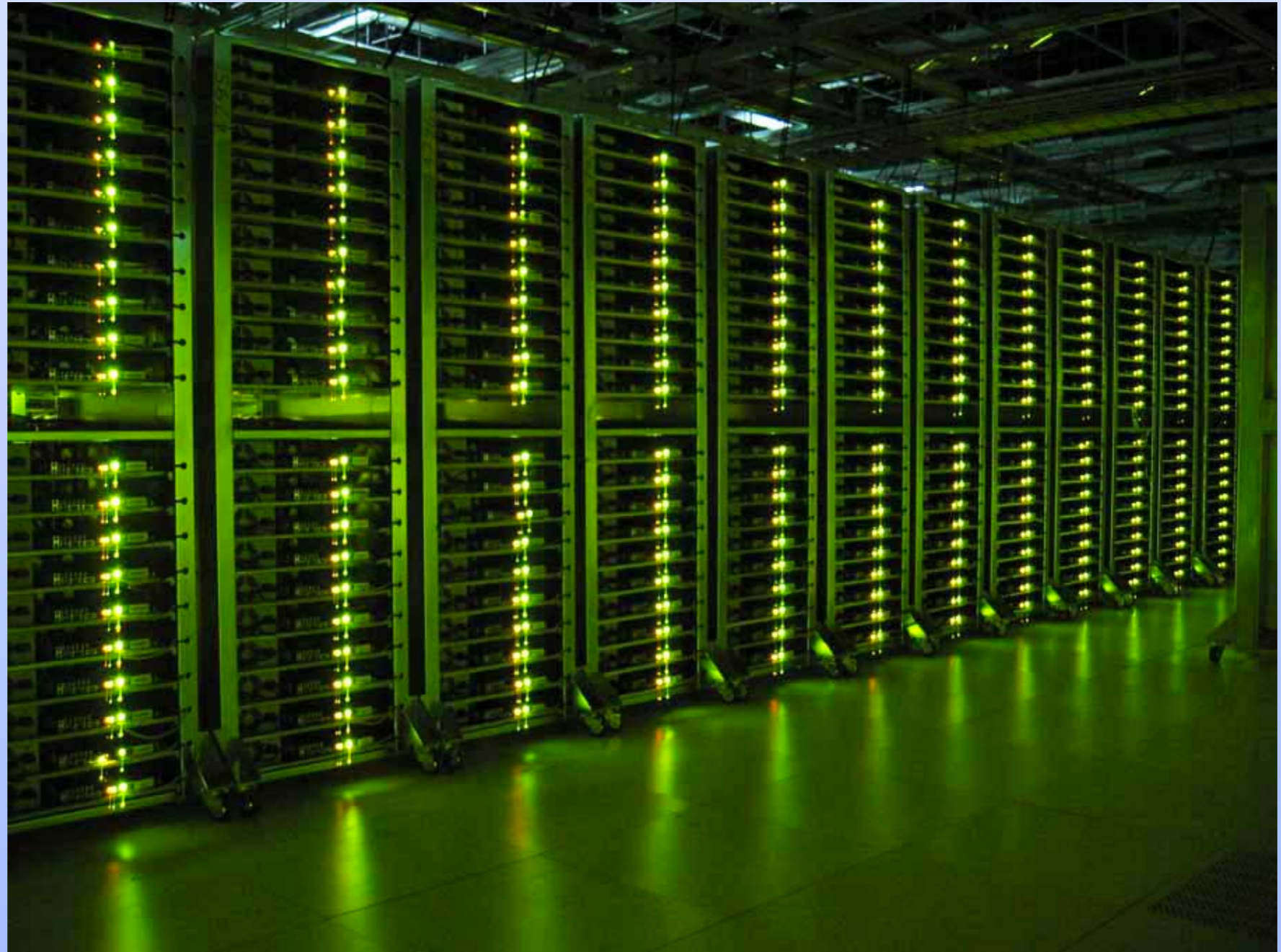
QCon北京站二维码

# Why

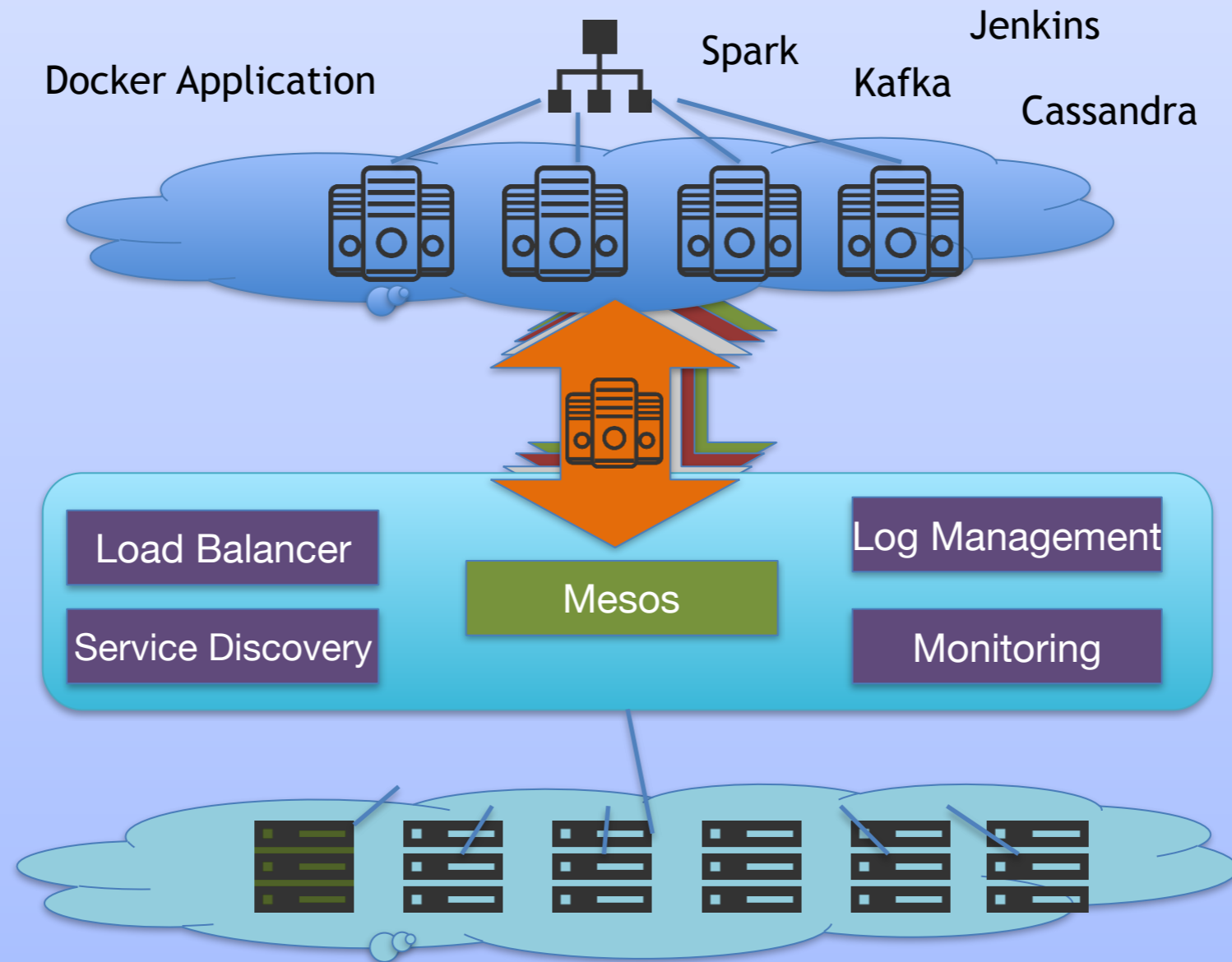
- Why high performance?
  - Business driven
    - More users, more data, etc
    - Scalability
- Why PaaS?
  - Facilitate building cloud native application
    - Better leverage cloud computing to achieve high performance

# Unreliable Hardwares

- Cost



# Platform-as-a-Service



# Cloud Native Application

- Fault tolerant
  - Due to unreliable hardwares
  - No single point failure
  - Auto recover
    - Stateless, easy to recover
- Extensibility
  - Due to fast business growth
  - Keep application architecture unchanged while adding recourses
    - Micro-service, easy to extend

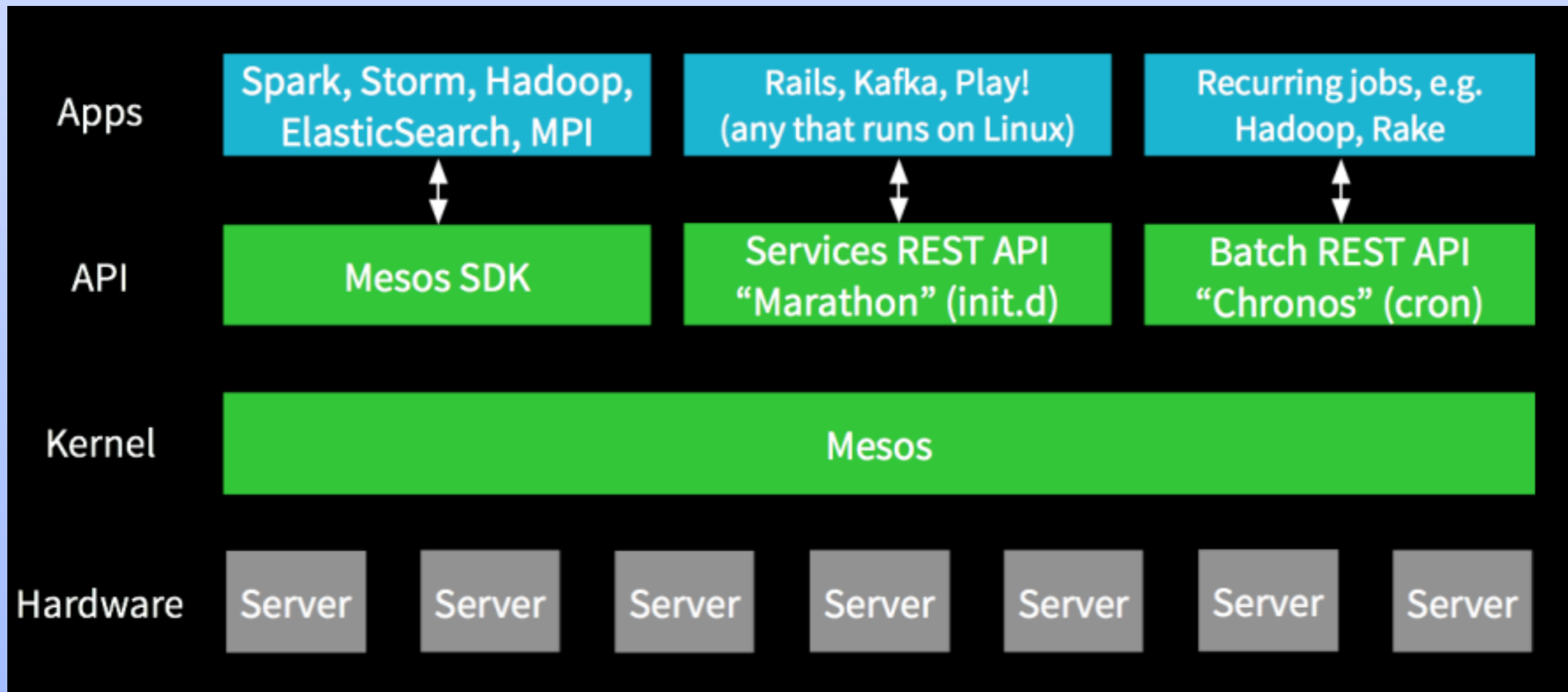
# How

Cloud Native Requirements	Application + PaaS
Fault Tolerant	Mesos + Marathon
Stateless	Application + DB/MQ/...
Extensibility	Mesos + Marathon
Micro-service	Application + Docker

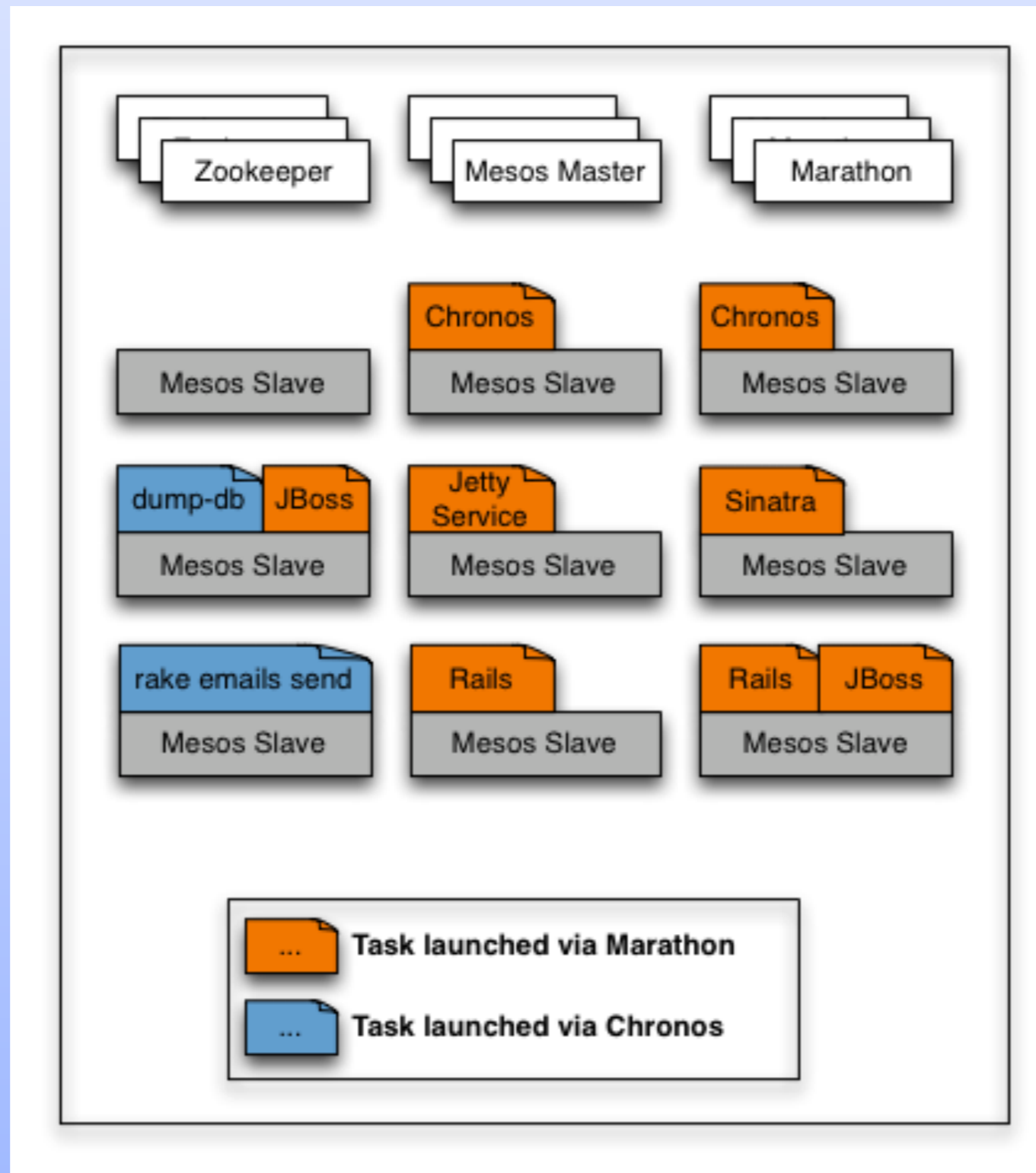


# Mesos

- Multiple masters, synchronized by Zookeeper
- ~1,000 Slaves, each 2 core 4G
- Frameworks: Marathon, Chronos, Spark, Hadoop, Storm, Kafka, Cassandra, ElasticSearch



# Job Running - Shared Resource



# Job Scheduling - Dynamic Scheduling



# Job Scheduling - Dynamic Scheduling

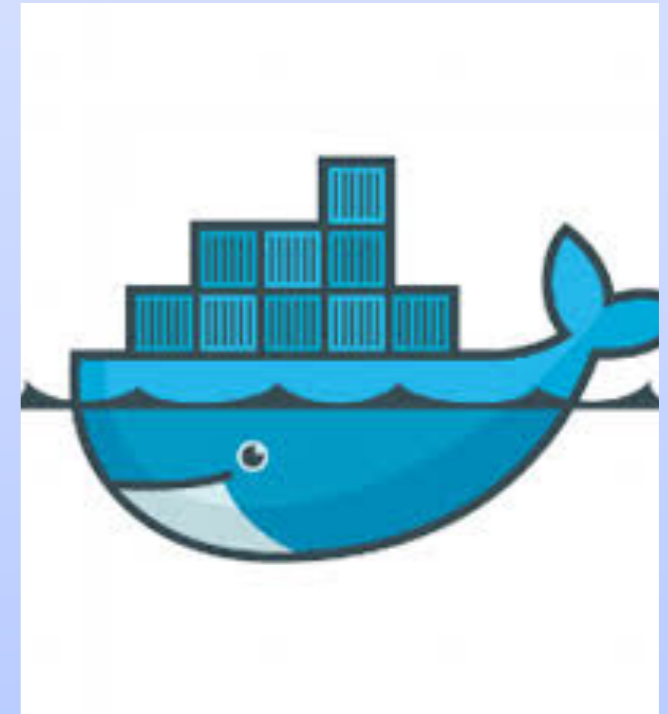


# Job Scheduling - Fault Tolerance

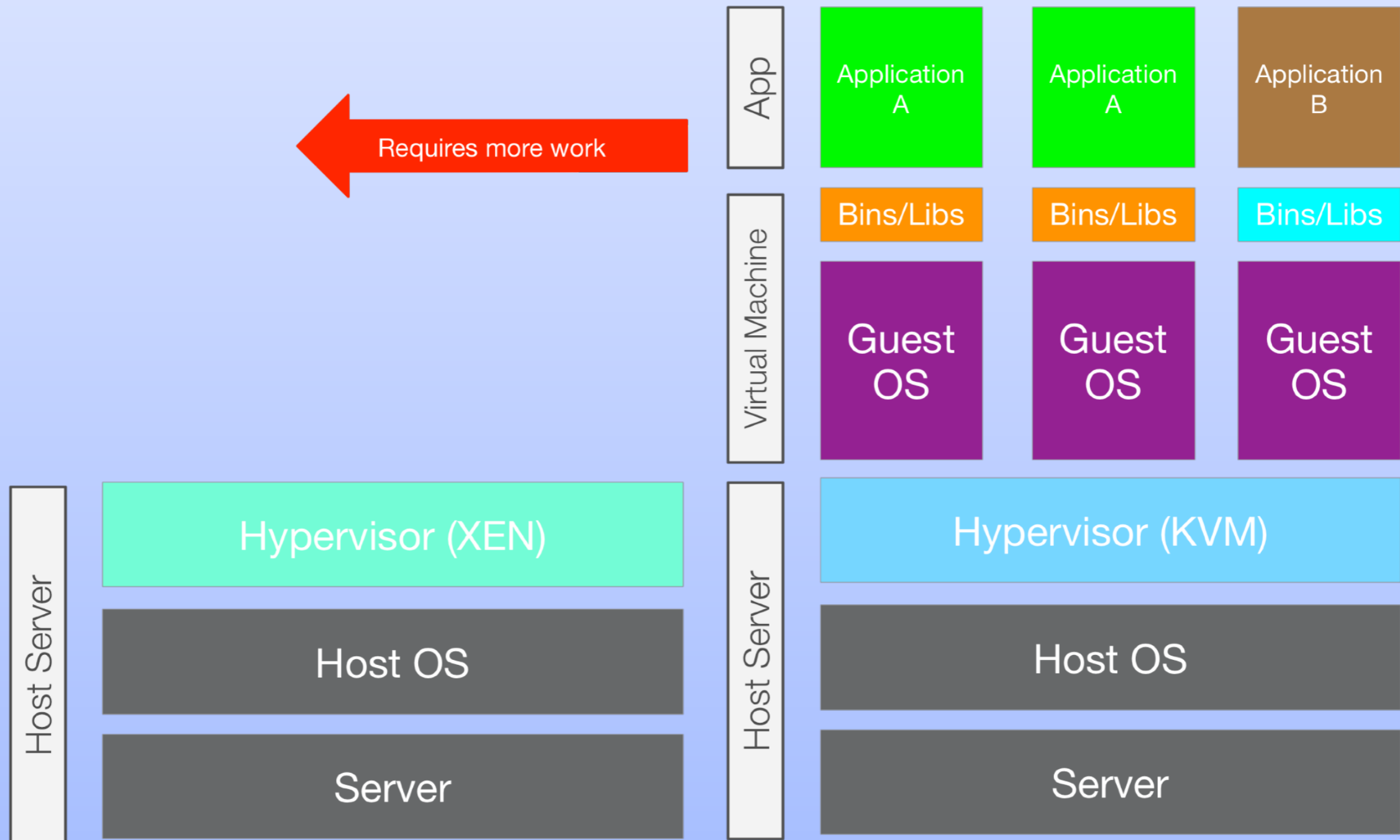


# Docker

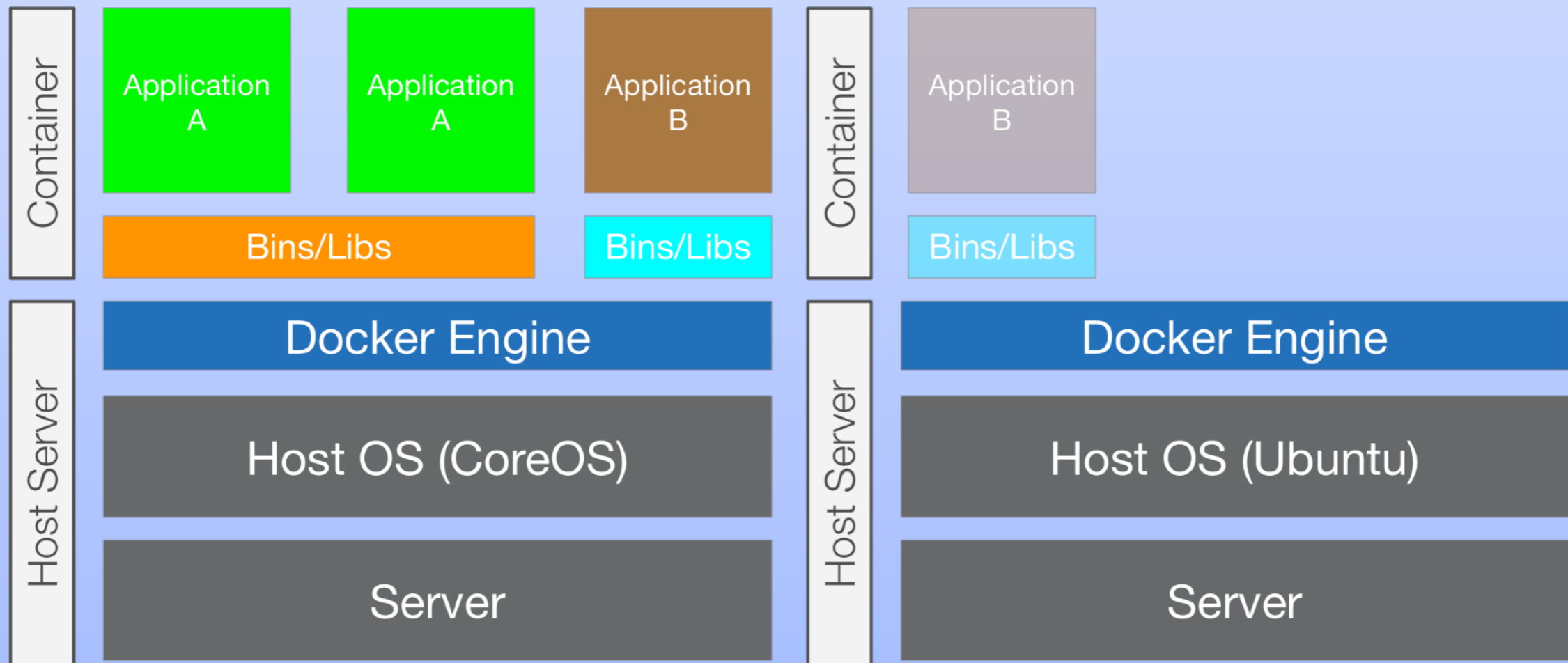
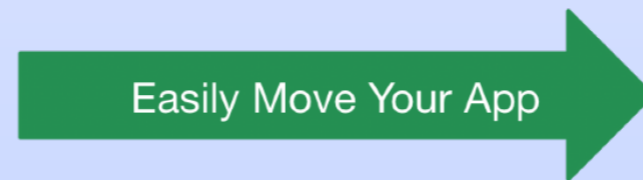
- Lightweight
- Portability
- Immutable infrastructure
- Easy updates



# VM v.s. Docker



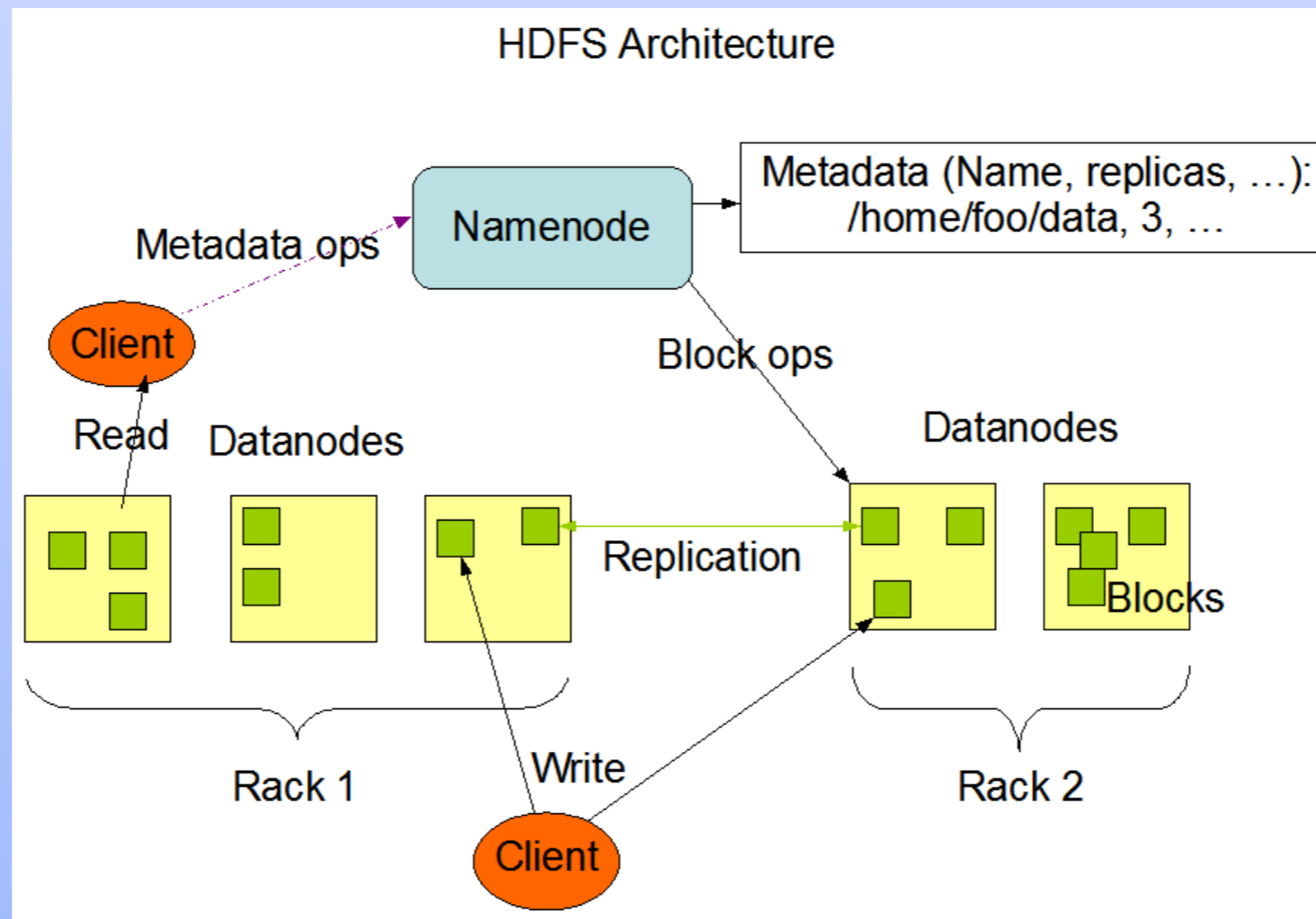
# VM v.s. Docker



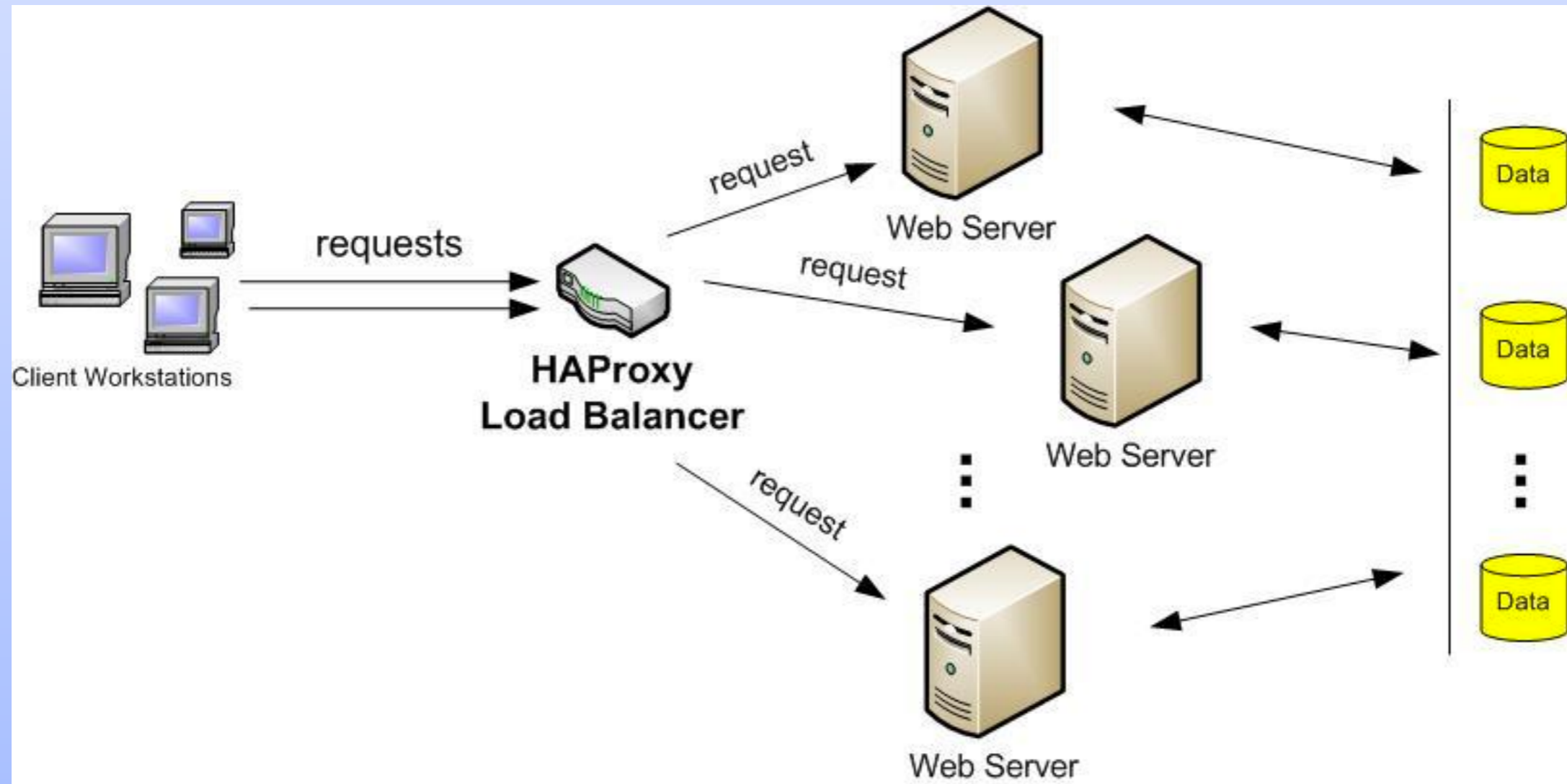


# Extensibility

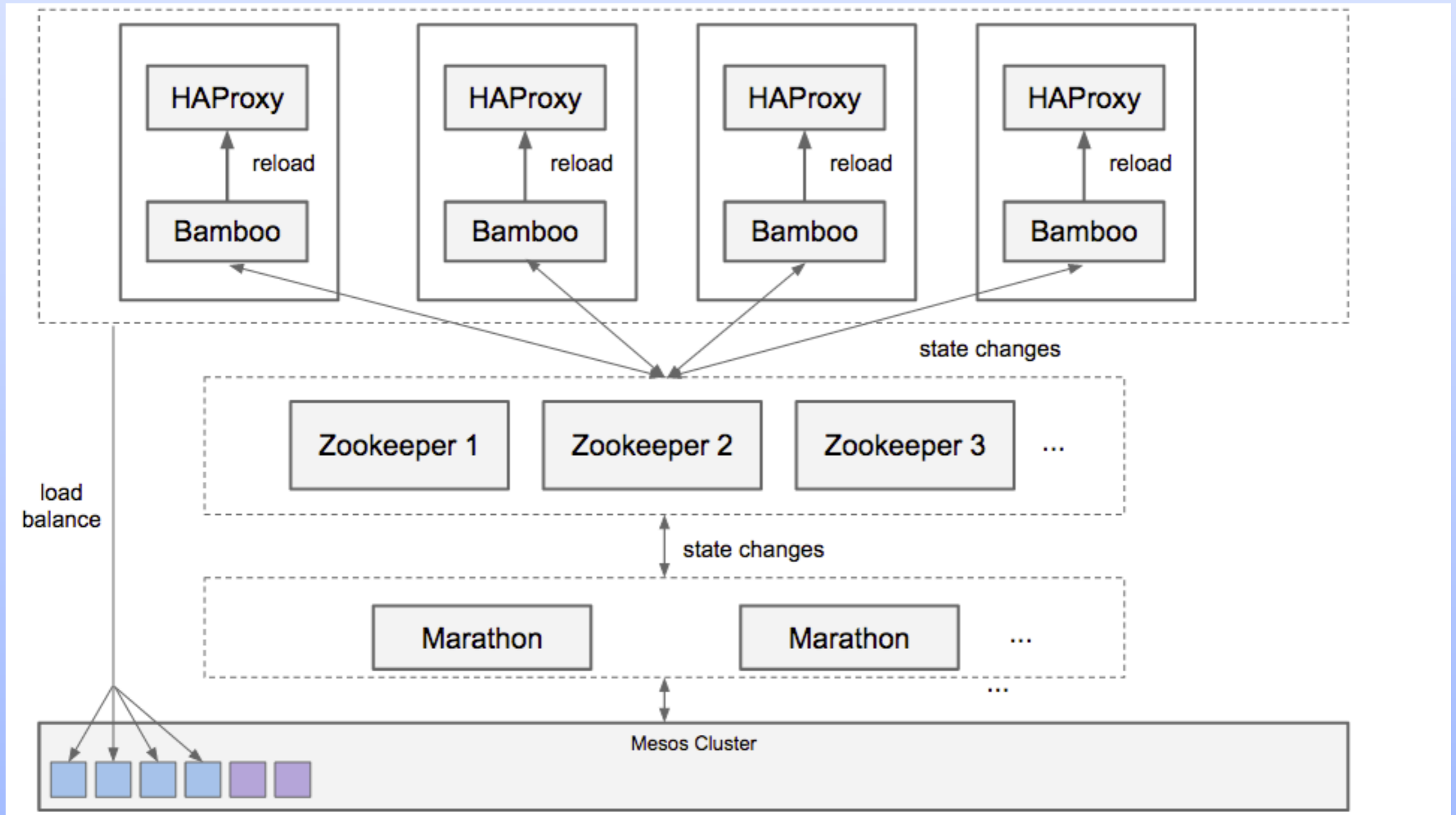
- Keep application architecture unchanged while adding resources



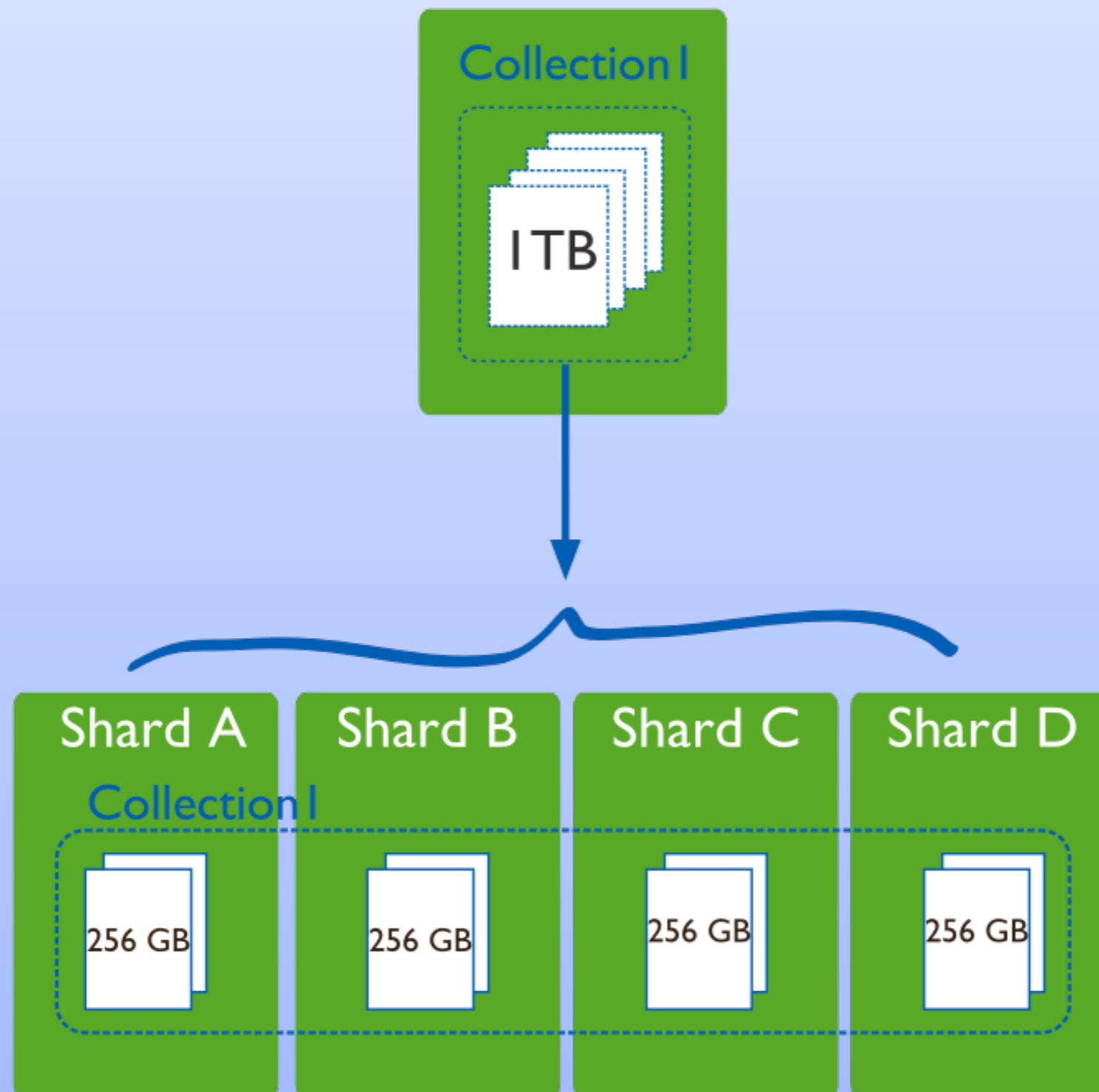
# Service Extensibility - Load Balancing



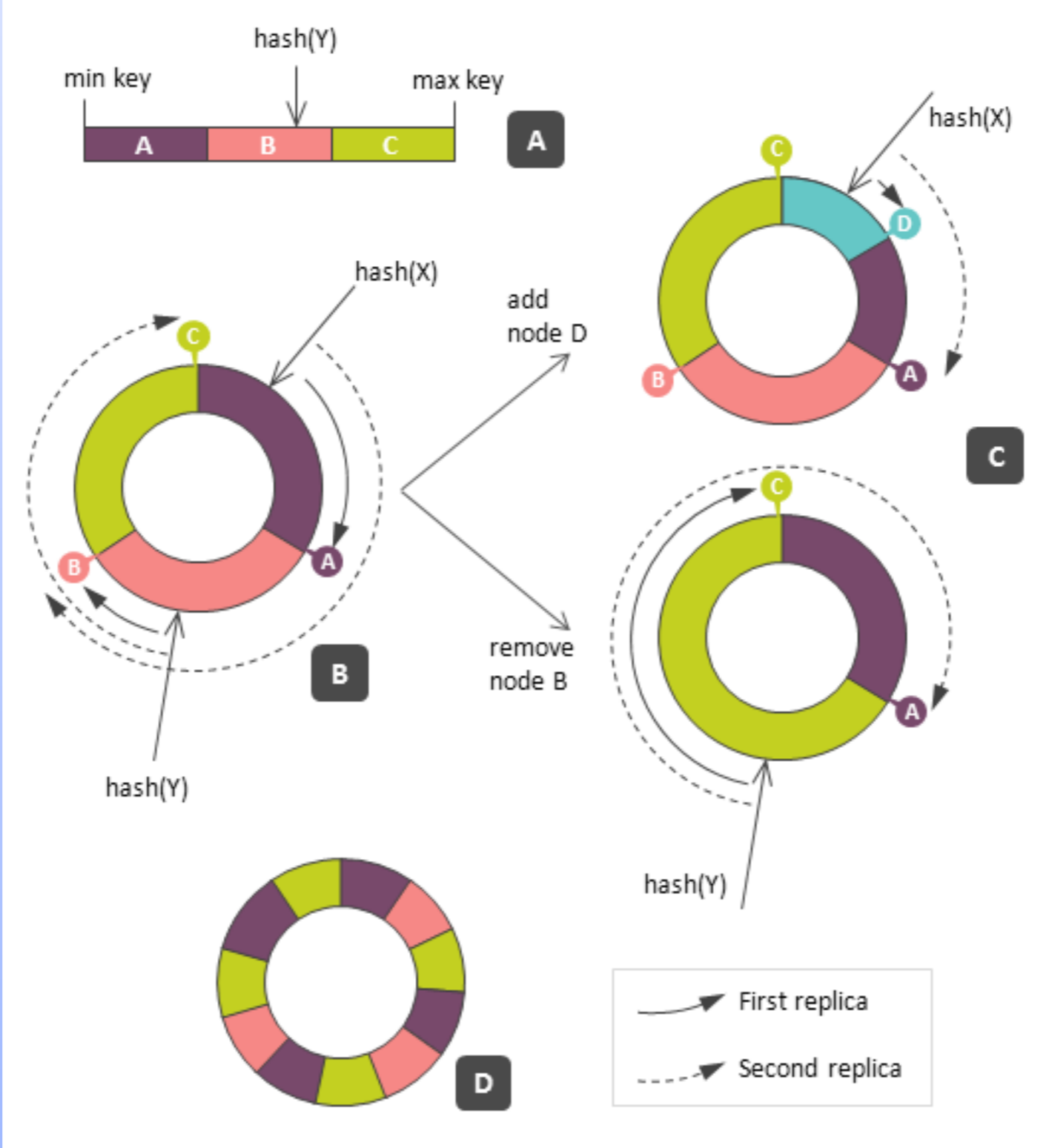
# Service Extensibility - Service Discovery



# Data Extensibility - Sharding

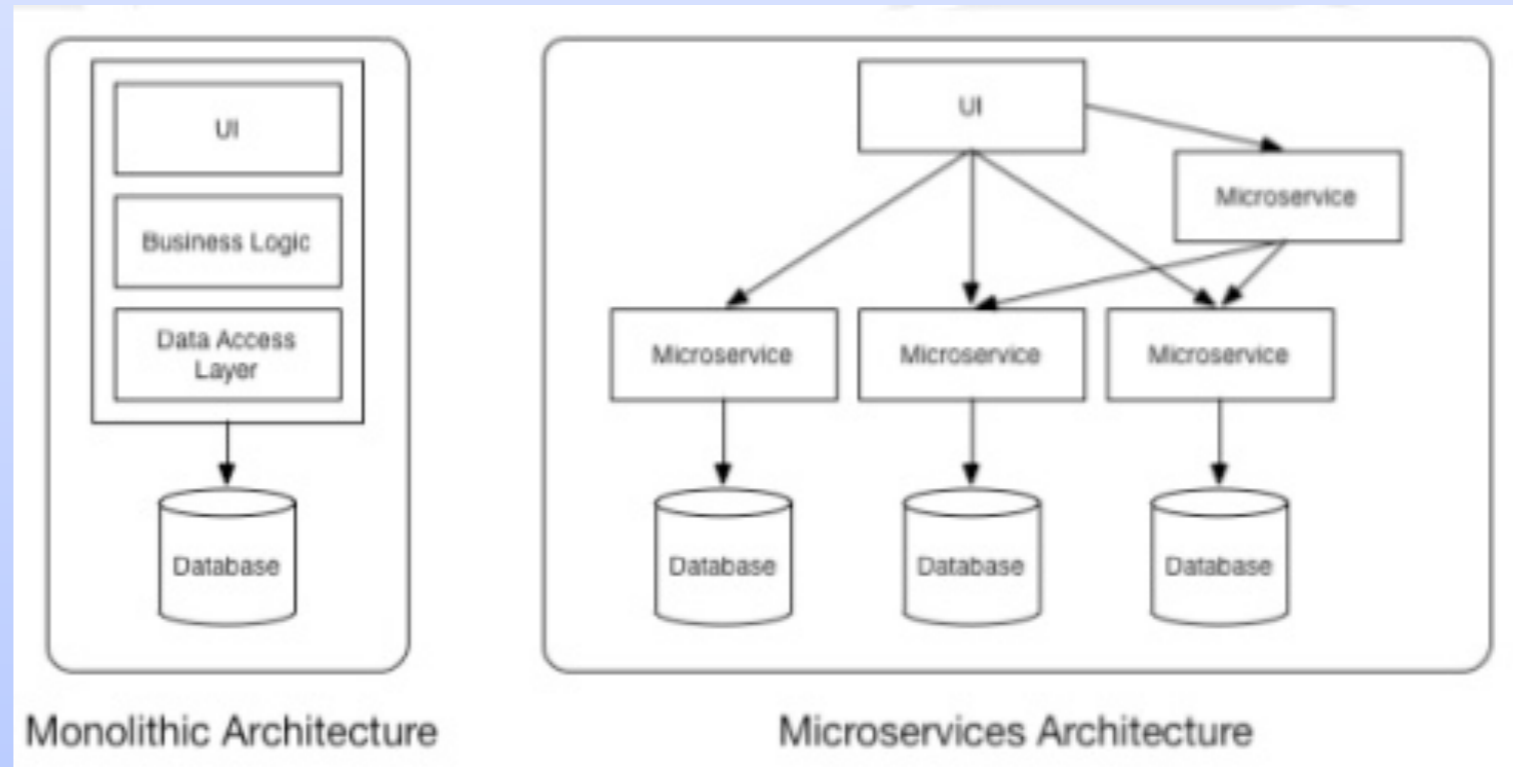


# Data Extensibility - Consistent Hashing

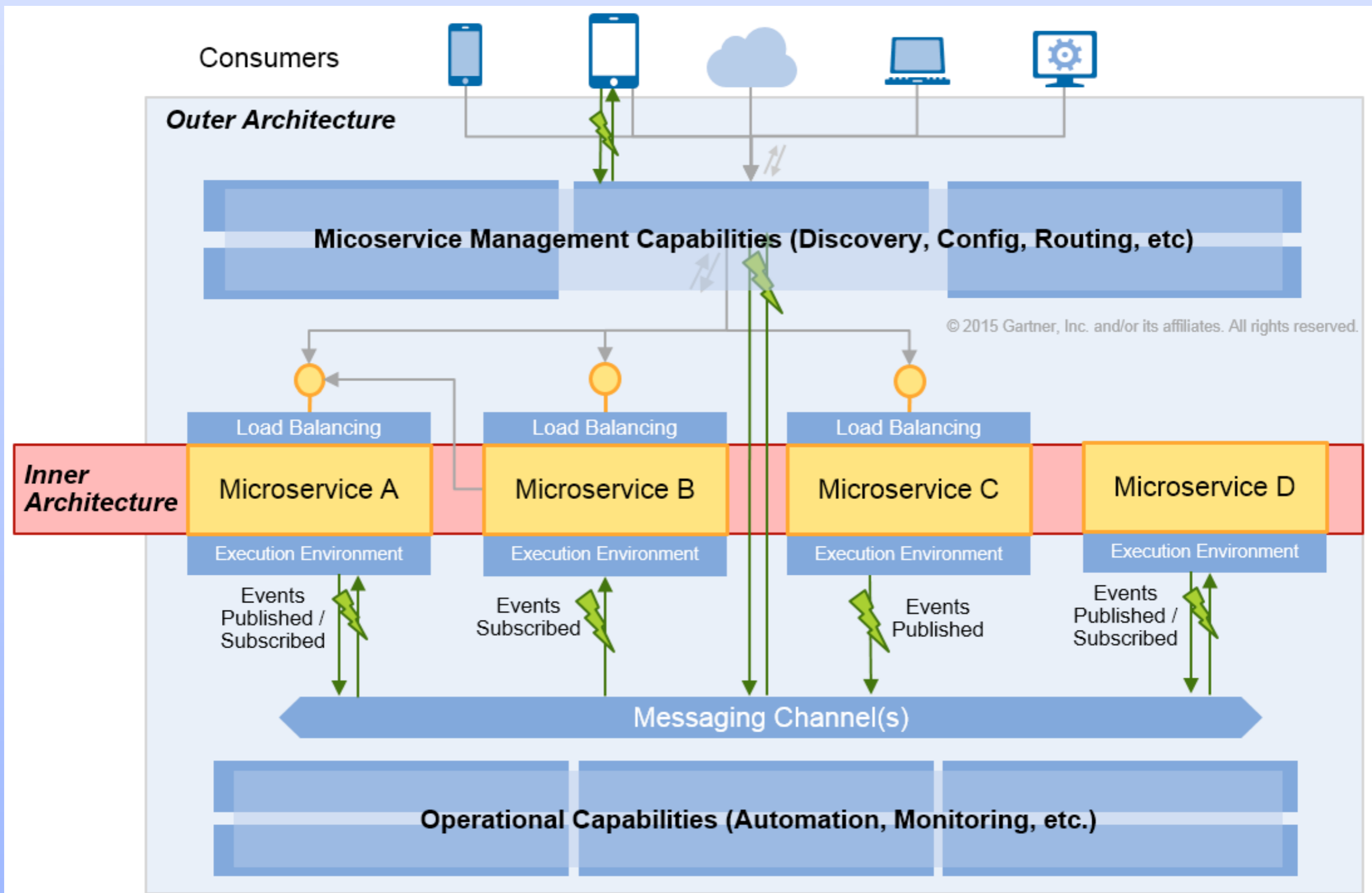


# Micro-service

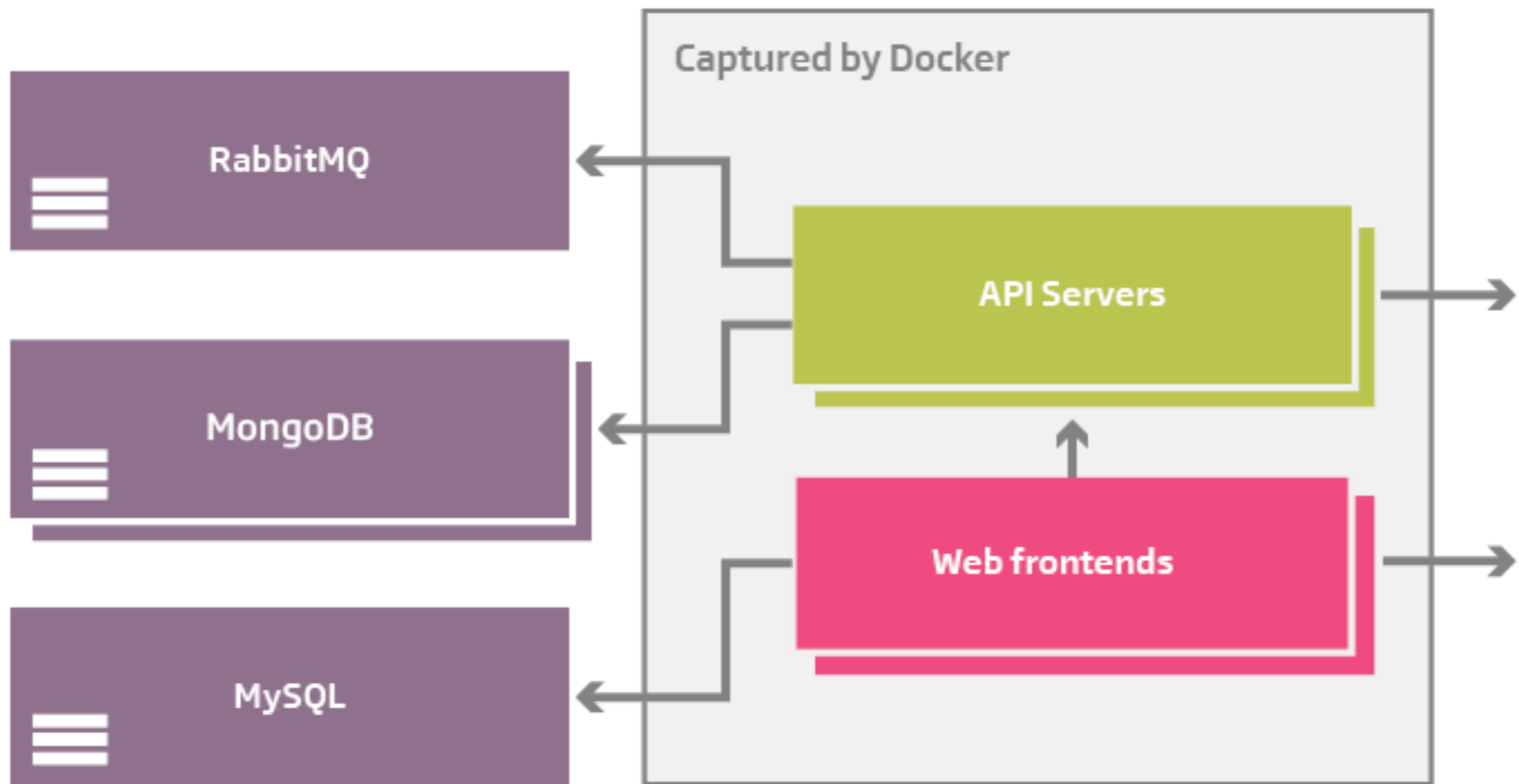
- Better extensibility
- Increased stability
- Easy updates
- Increased efficiency
- Increased scalability



# Micro-service



# Stateless





# Our Products

- <http://www.shurenyun.com>



# Cluster Management

http://www.shurenyun.com

## 新建集群

新建集群

Administer

集群名称 主机数量：105

正常主机 95 失联主机 8 报警主机 1 初始化中主机 1

集群管理

共105台主机 点击显示更多

创建时间: 2015-06-06 23:23:23

数人云 shurenyun.com

Detailed description: The image shows a web interface for cluster management. At the top, there's a browser address bar with 'http://www.shurenyun.com'. Below it, a dark sidebar on the left contains a user profile for 'Administer' and a '集群管理' (Cluster Management) menu item. The main content area is titled '新建集群' (New Cluster) and features a green '新建集群' button. It displays the cluster name and a total of 105 hosts. A summary row shows: 95 normal hosts (green pulse icon), 8 disconnected hosts (red stop icon), 1 alarm host (yellow exclamation mark icon), and 1 initializing host (blue gear icon). Below this is a visual representation of the hosts as server racks, with colored dots indicating their status. A '点击显示更多' (Click to show more) link is provided. At the bottom, the creation time is listed as '2015-06-06 23:23:23'. The footer contains the '数人云' logo and website name.

# Monitoring

http://www.shurenyun.com

## 主机详情

Administer

主机状态 **运行正常**

Mesos状态 **运行正常**

Marathon状态 **运行正常**

Zookeeper状态 **运行正常**

IP地址 115.28.59.88 所属集群 [abciv0c7](#) 创建时间 2015-06-29 07:56:38 CPU 2核 内存 1840<sub>MB</sub>  
系统版本 CentOS Linux 7 (Core) 容器版本 docker://Unknown agent版本 0.1.0

### CPU监控

一小时内变化

Time	CPU Usage (%)
12:00	40
12:05	50
12:10	55
12:15	45
12:20	70
12:25	60
12:30	32
12:35	42
12:40	40
12:45	45
12:50	42
12:55	47.25

# Log Management

http://www.shurenyun.com

## 日志管理

Administer

集群管理

日志管理

集群名

主机名/IP

起止日期

应用名

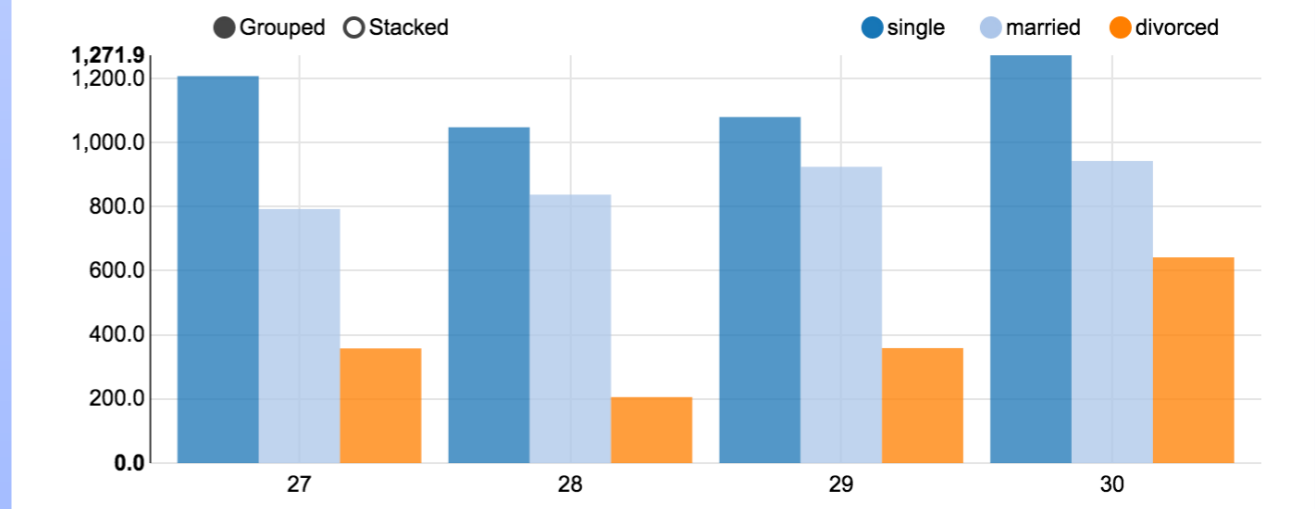
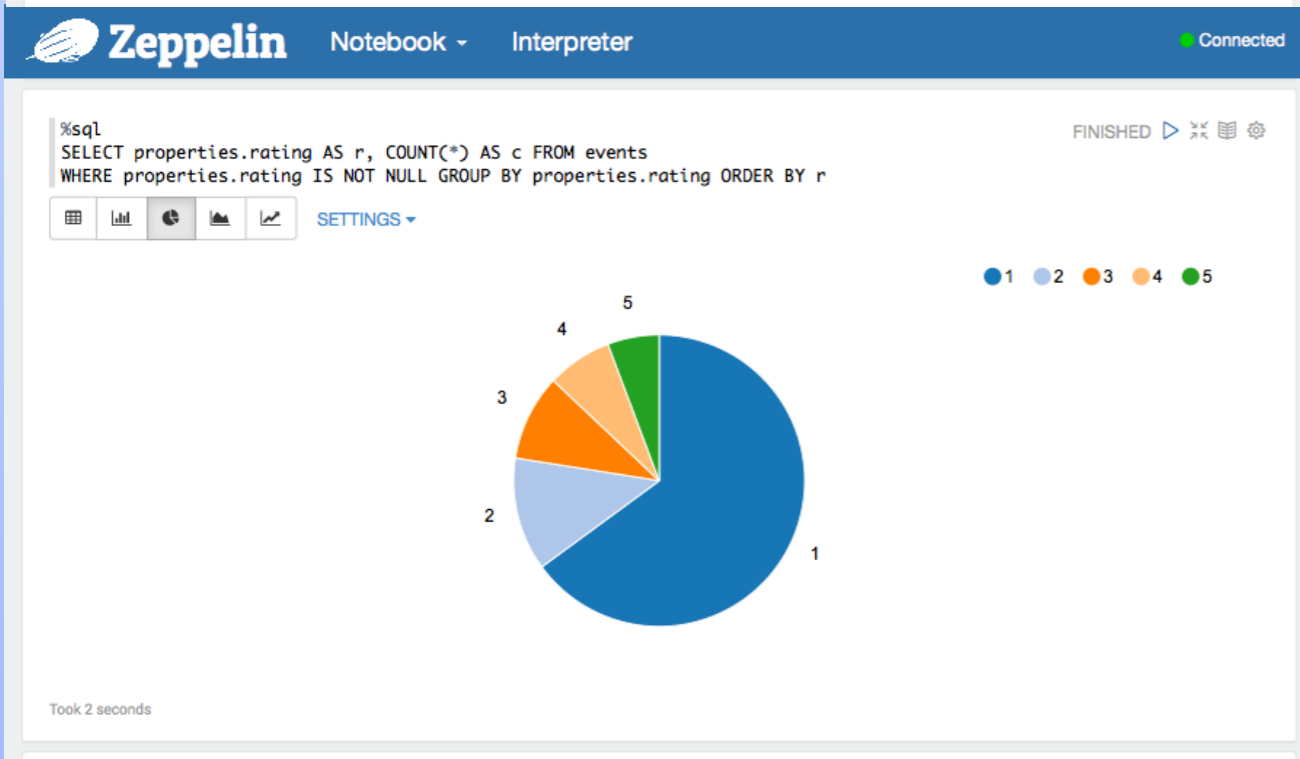
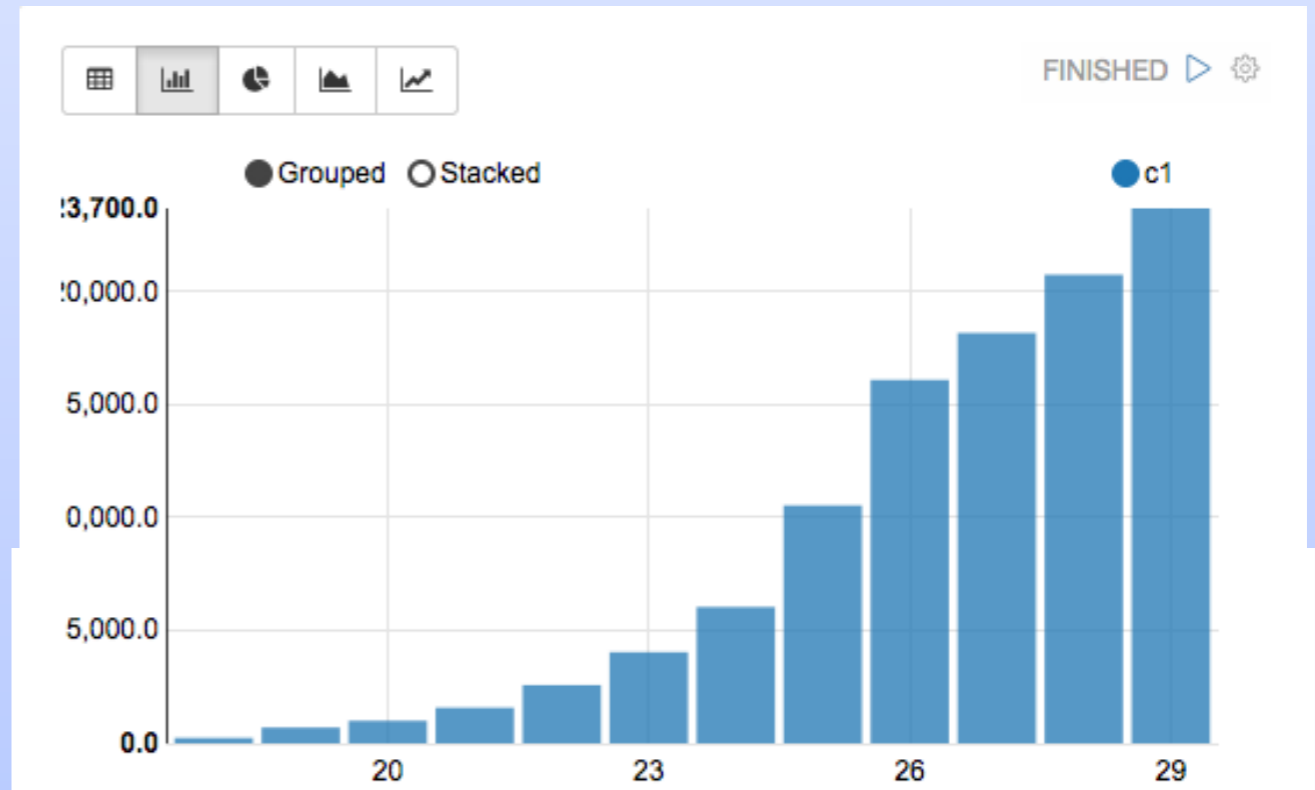
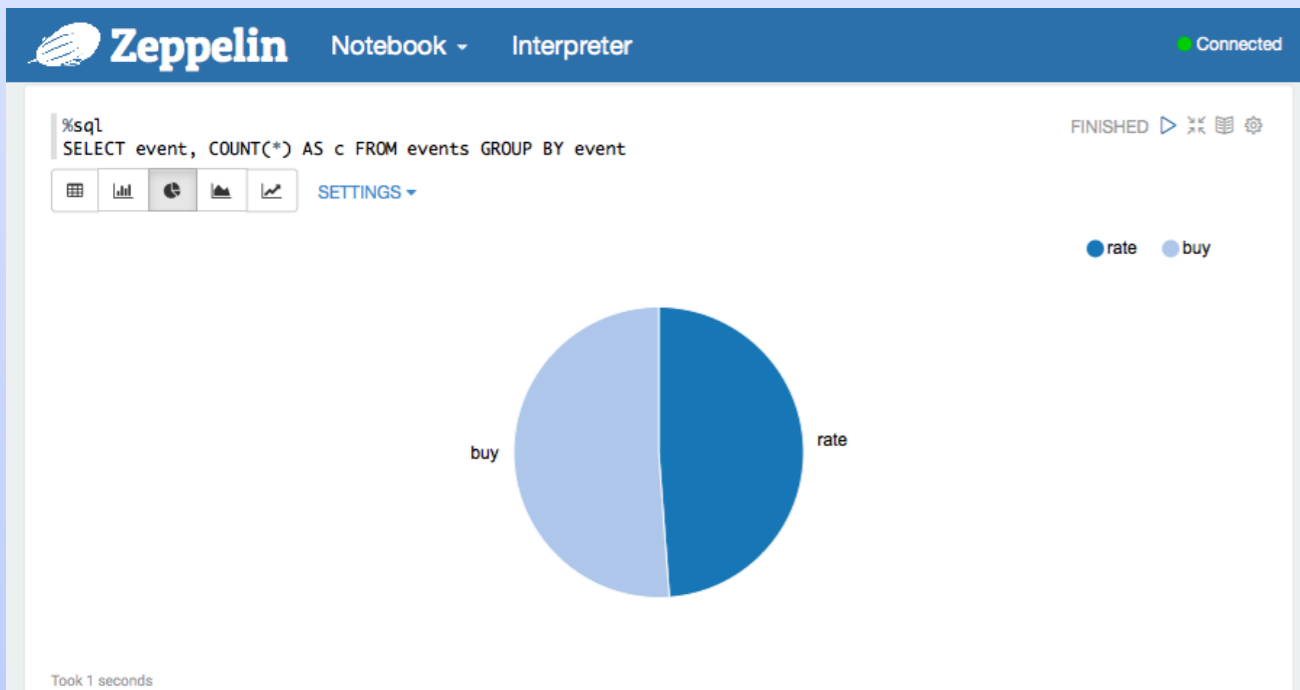
关键字

查询

```
Reveal the plugins folder, open Content Generator Sketch Plugin,
then paste your text into the this file: Data > Text > my-text.js
Reveal the plugins folder, open Content Generator Sketch Plugin,
then paste your text into the this file: Data > Text > my-text.js
Reveal the plugins folder, open Content Generator Sketch Plugin,
then paste your text into the this file: Data > Text > my-text.js
```

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shurenyun.com

# Spark Application



Thanks!

