



Apache RocketMQ – Trillion Messaging in Practice

冯嘉(Von Gosling)





Von Gosling, Alibaba Architect , Master of Computer Science, Over 7 years of industrial software experience, especially in distributed tech., high performance web architecture and performance tuning. Possesses many patents in distributed system, recommender etc.

Open source fanatic. Focuses on distributed systems, cloud computing and big data fields. Apache RocketMQ PPMC member & committer.

Currently in charge of [Aliware MQ](#). Email: vongosling@apache.org



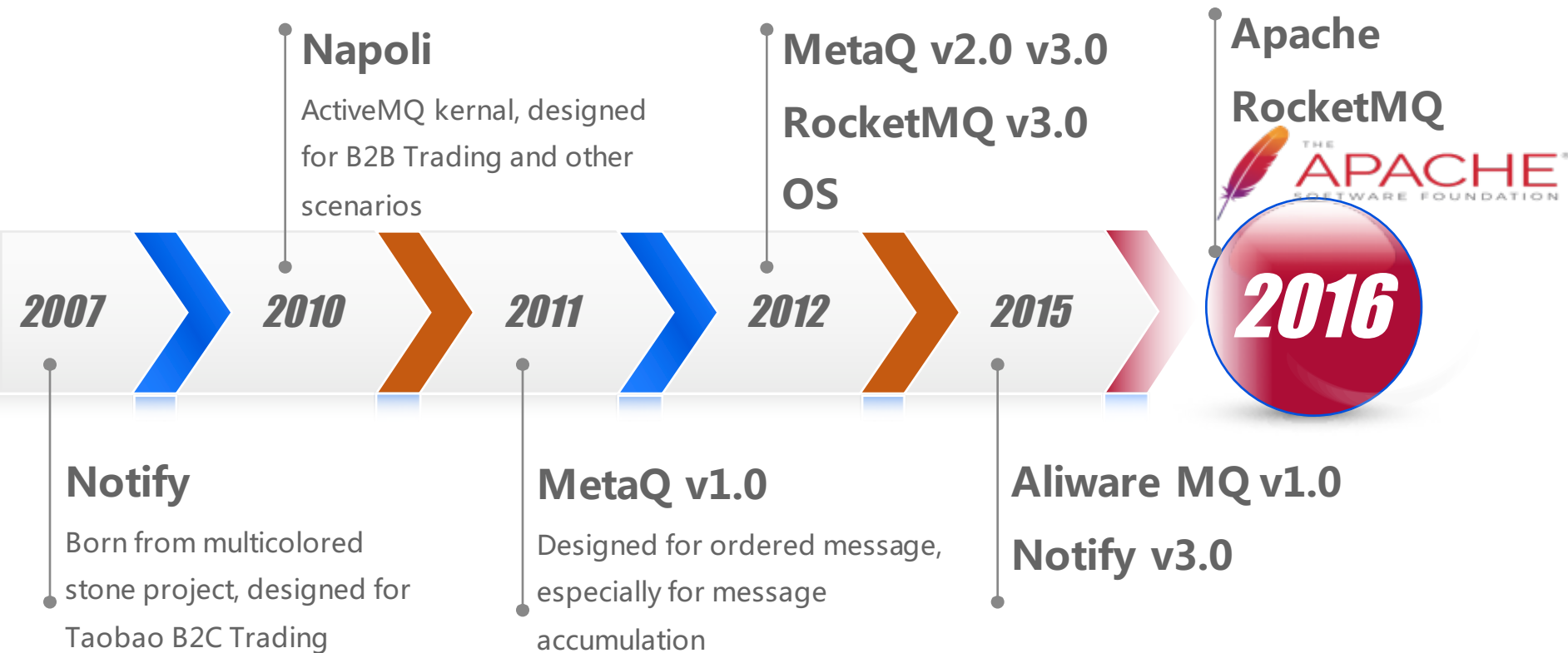


Part I

From Alibaba to Apache

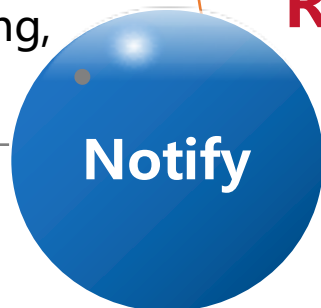


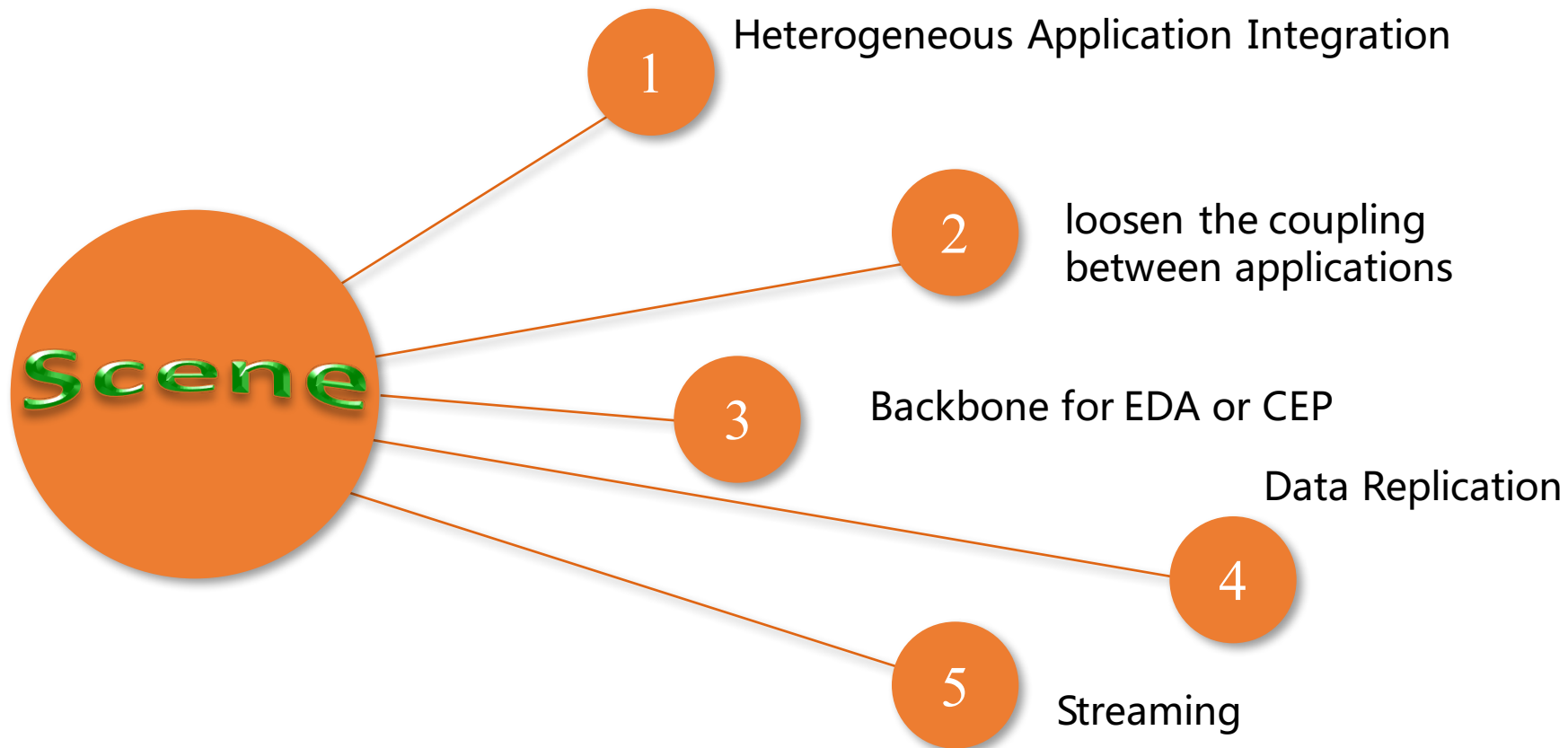
阿里中间件
Alibaba
Middleware





阿里中间件
Alibaba
Middleware

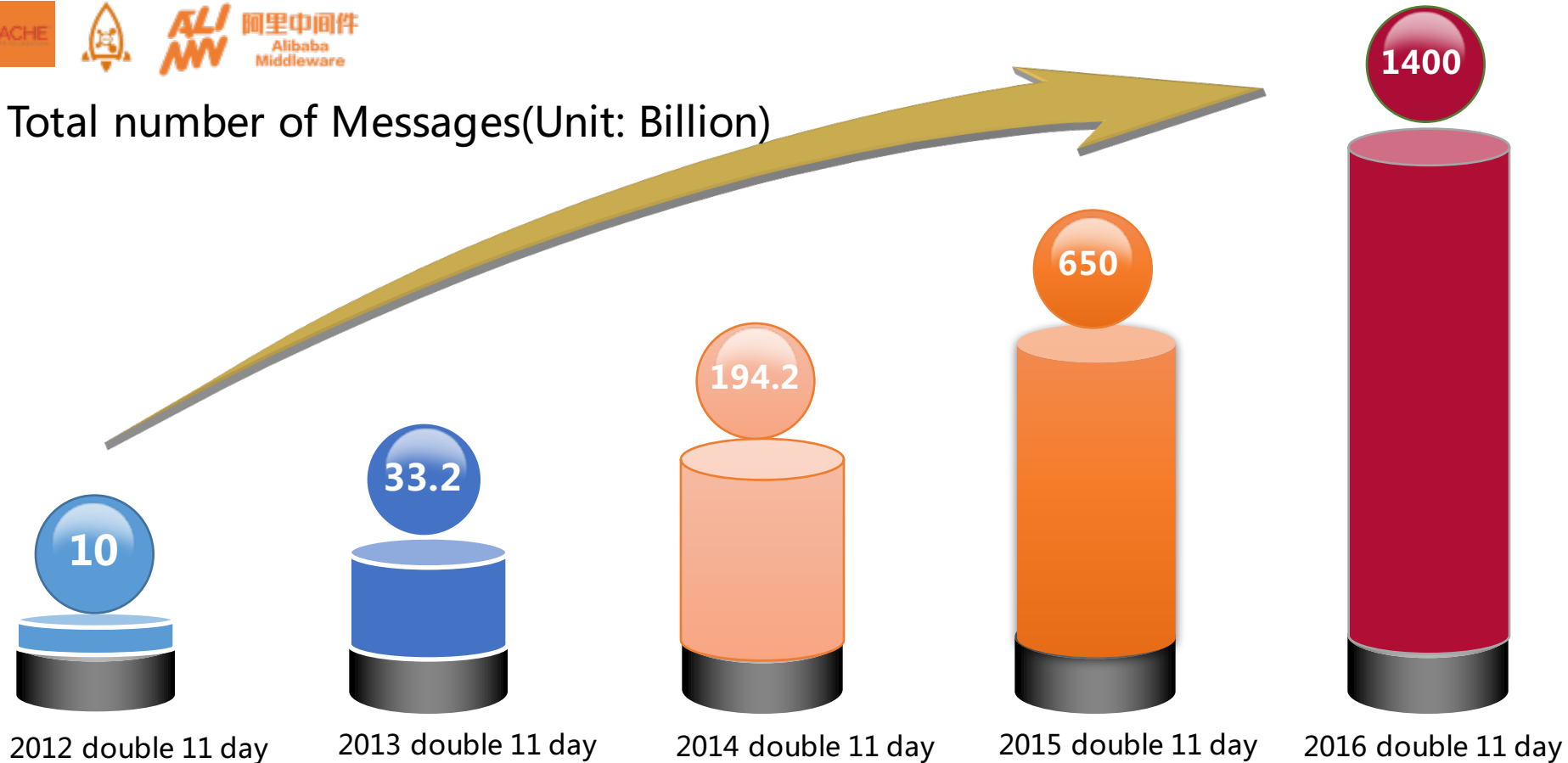






阿里中间件
Alibaba
Middleware

Total number of Messages(Unit: Billion)





阿里中间件
Alibaba
Middleware

What's Next ↗

Apache RocketMQ in Practice



01/Architecture and Features

02/Monitoring and Administering

03/Performance Tuning

04/Apache RocketMQ 4.X



阿里中间件
Alibaba
Middleware

01

Architecture and Features

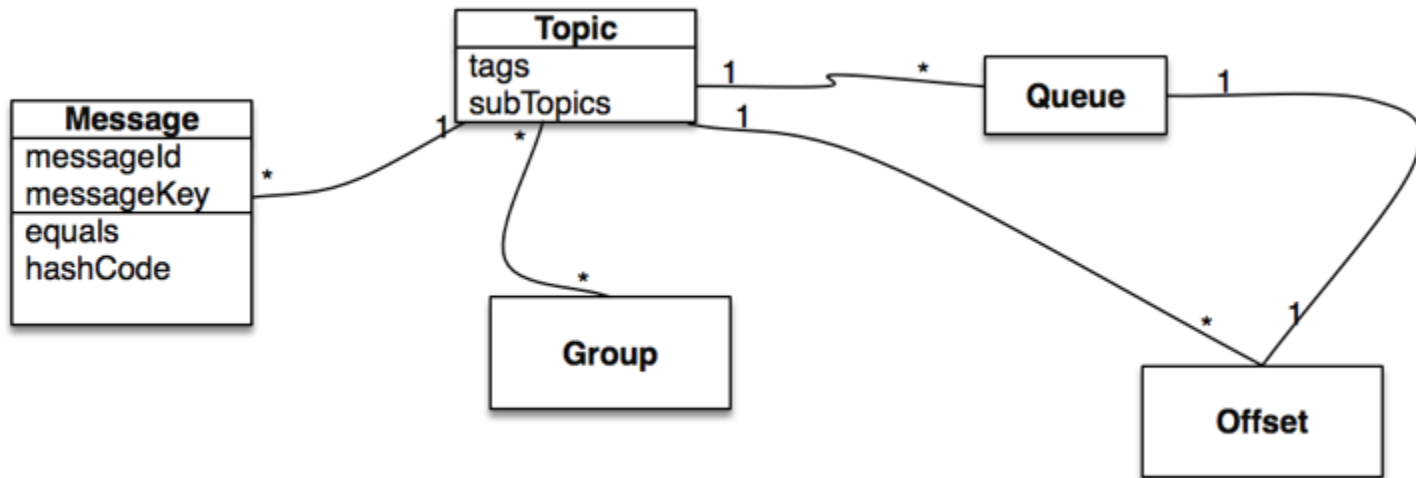


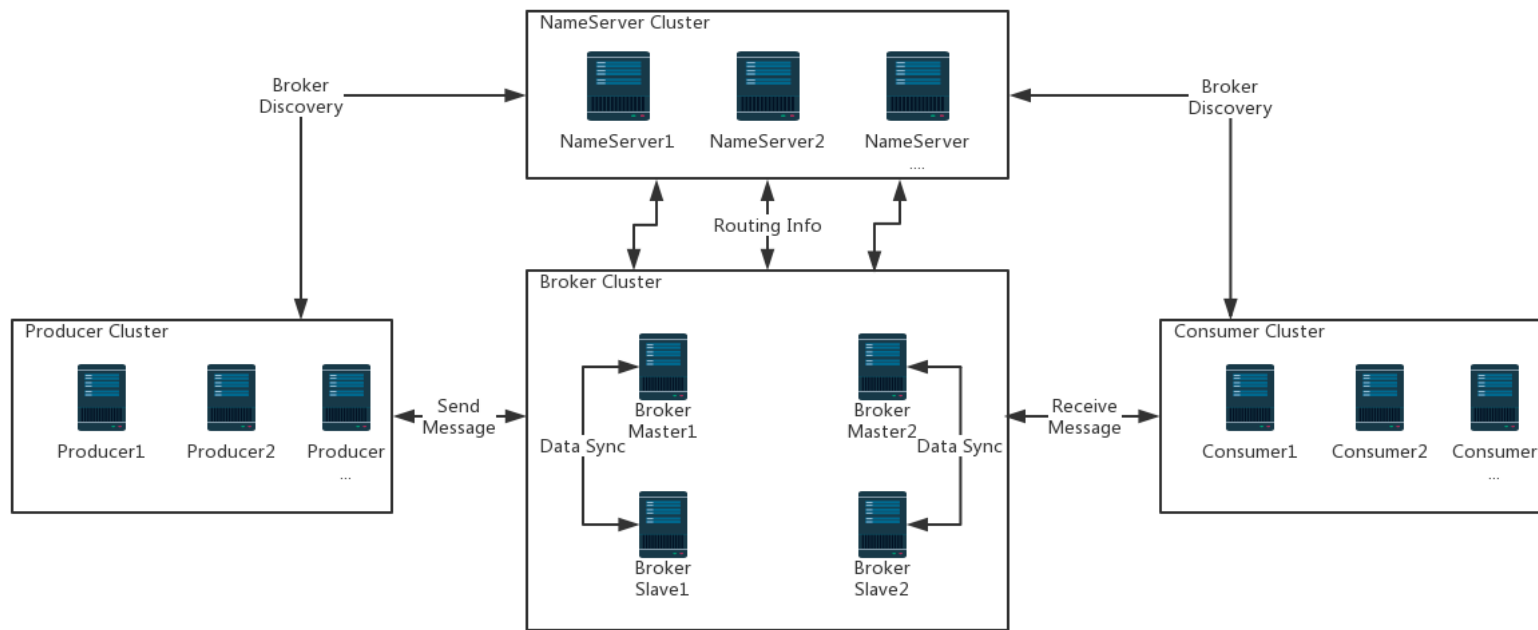
..... 合抱之木生于毫末；九层之台起于累土；千里之行始于足下.....

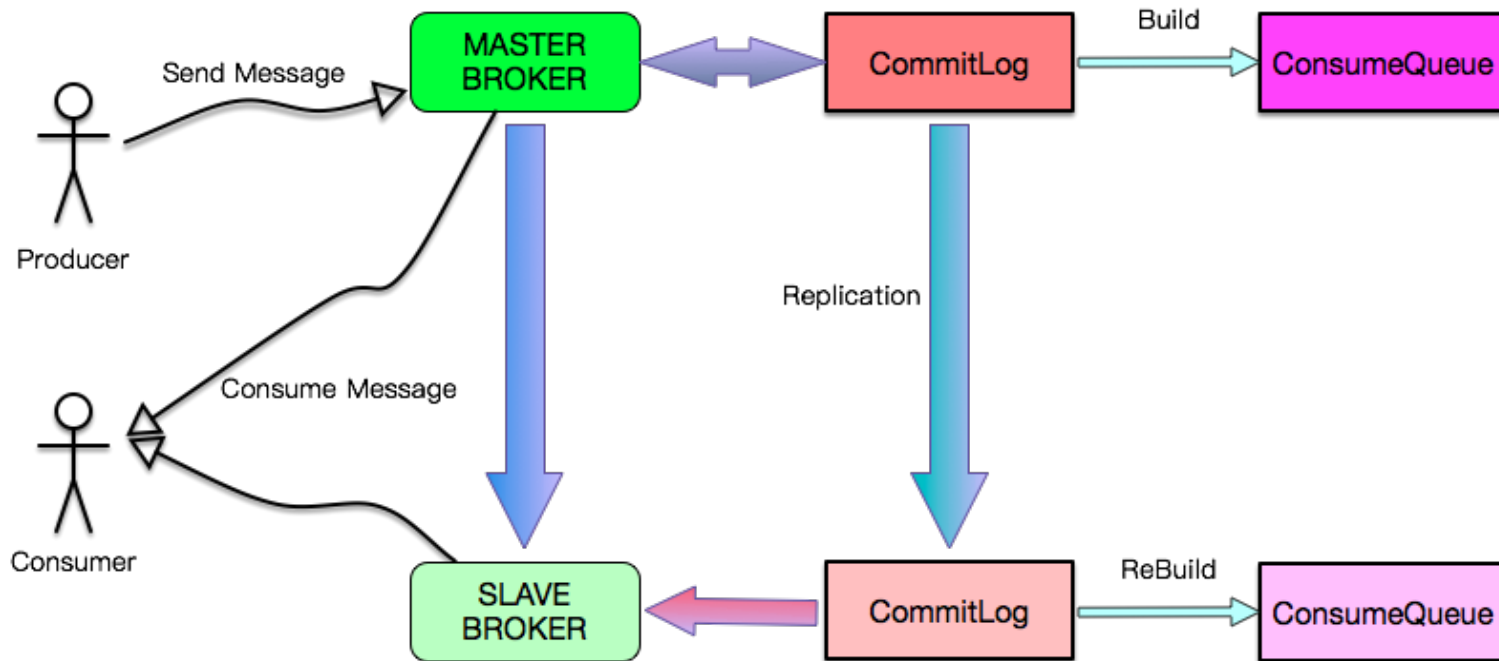


阿里中间件
Alibaba
Middleware

Architecture





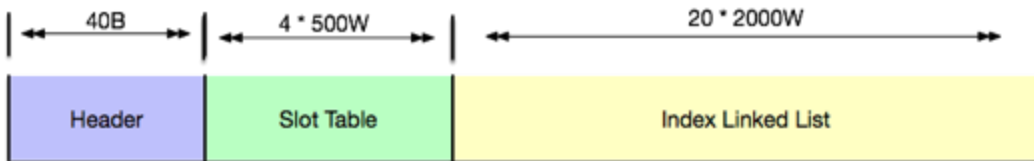




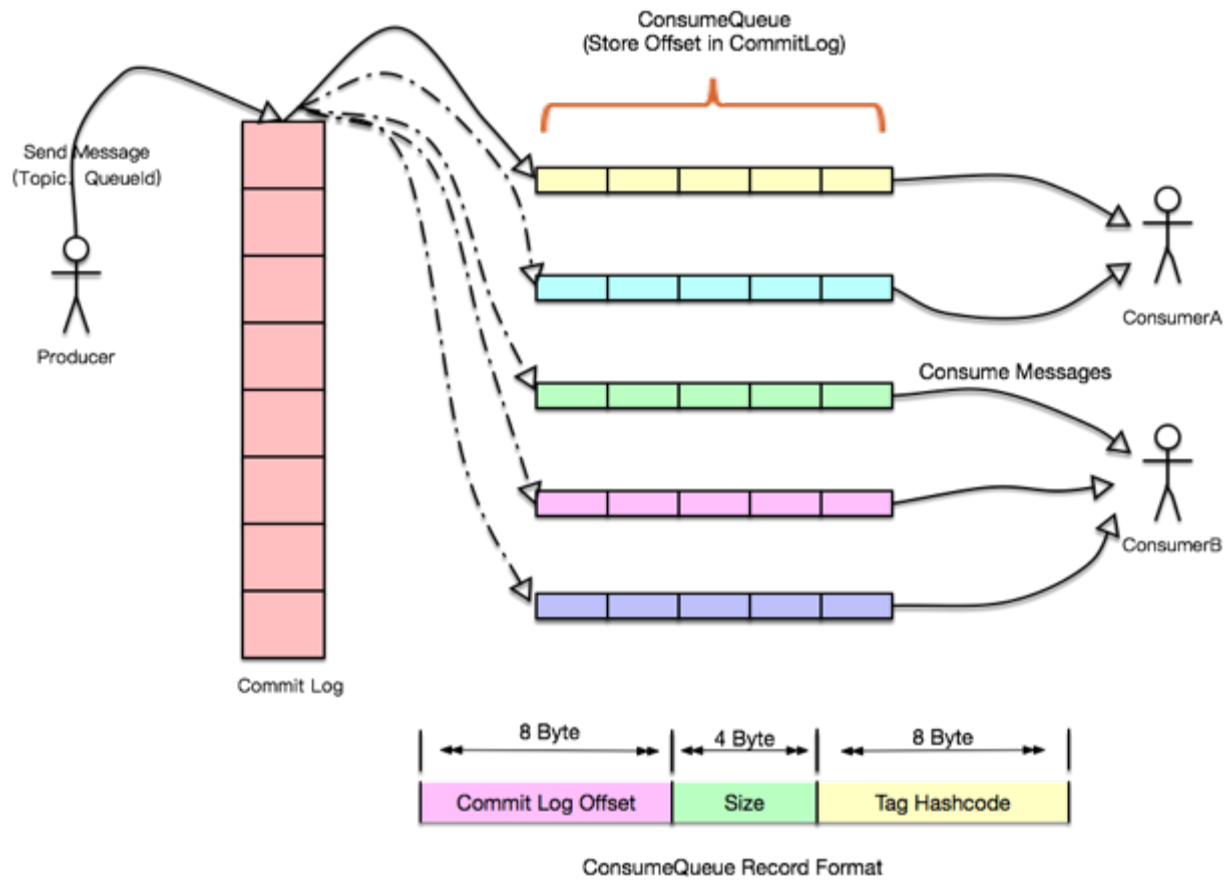
阿里中间件
Alibaba
Middleware

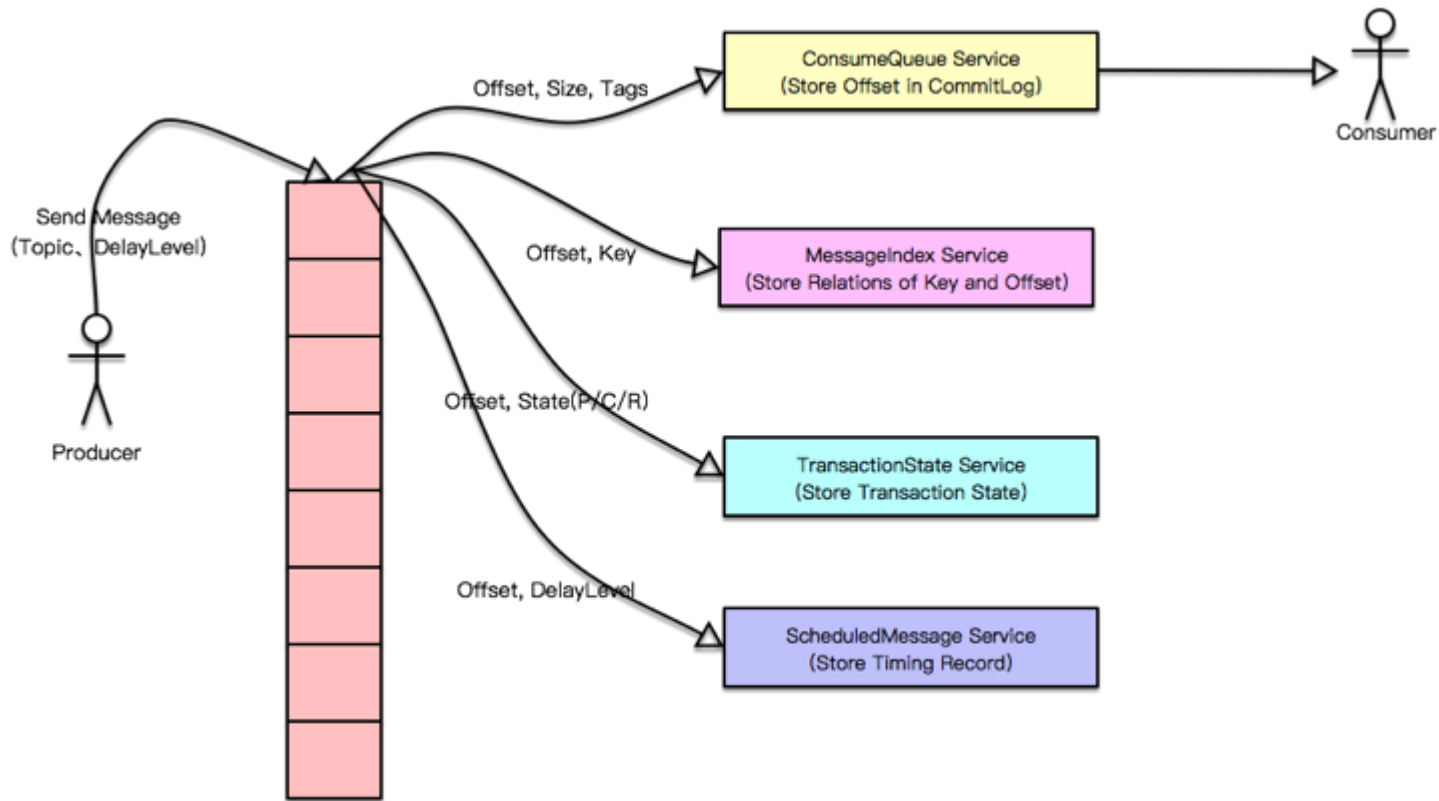
Slot Table

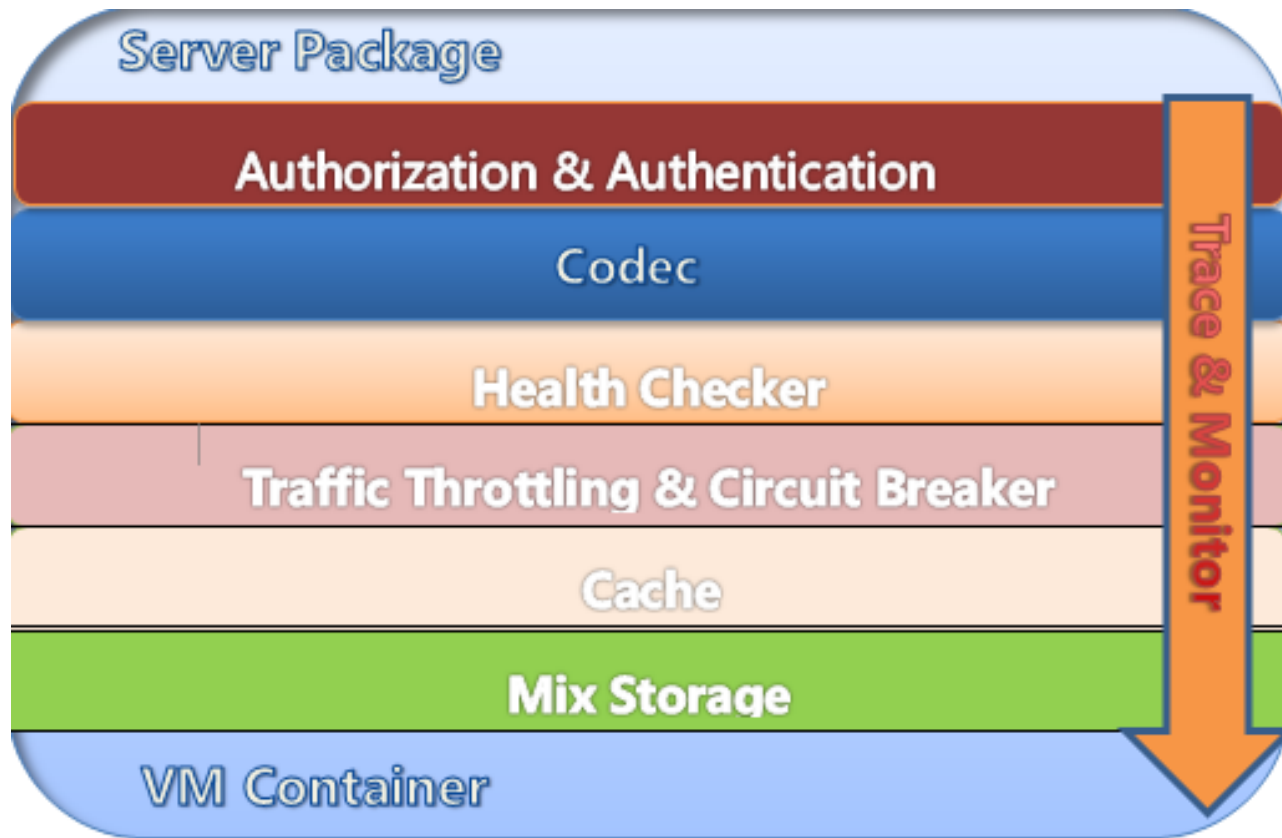
0
1
2
3
4
...
...
...
...
...
...
500W

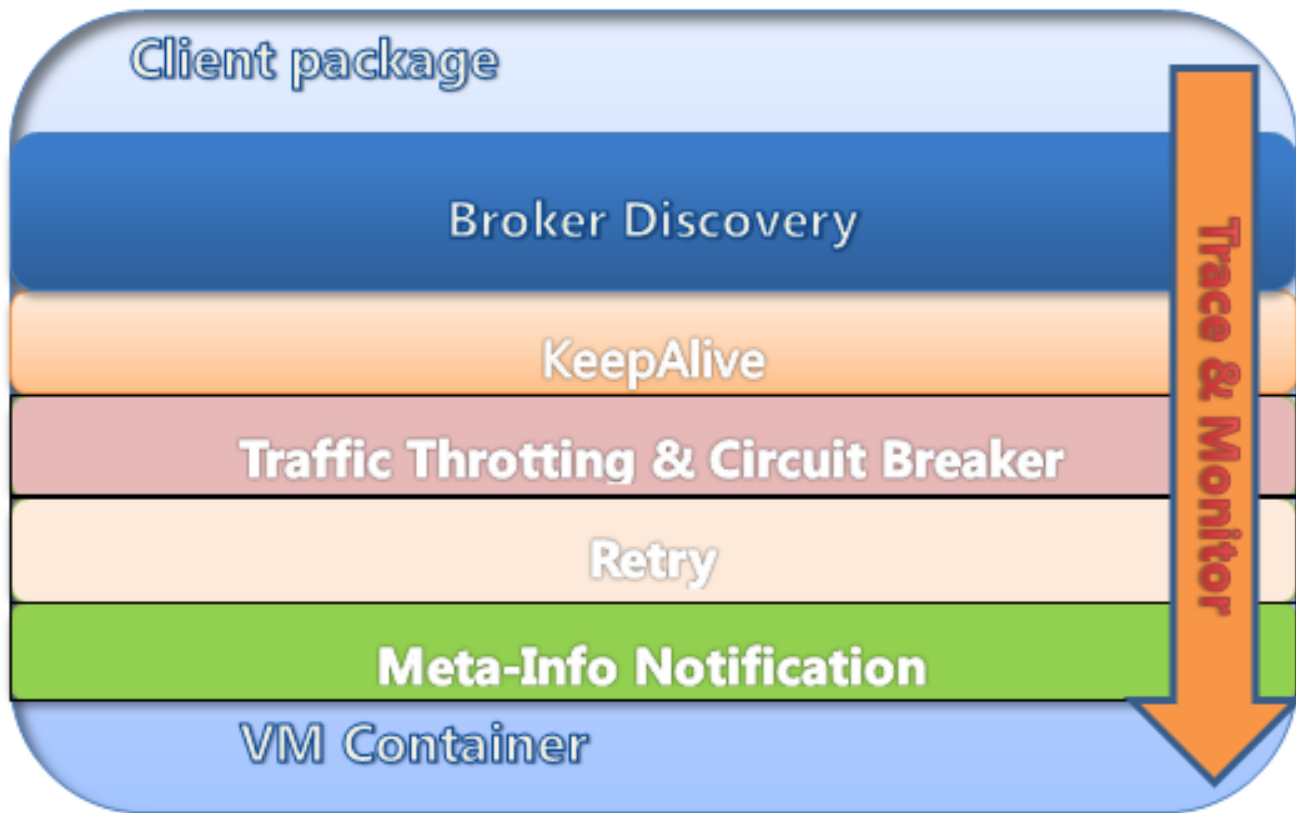


Index File Format











阿里中间件
Alibaba
Middleware

Community Features

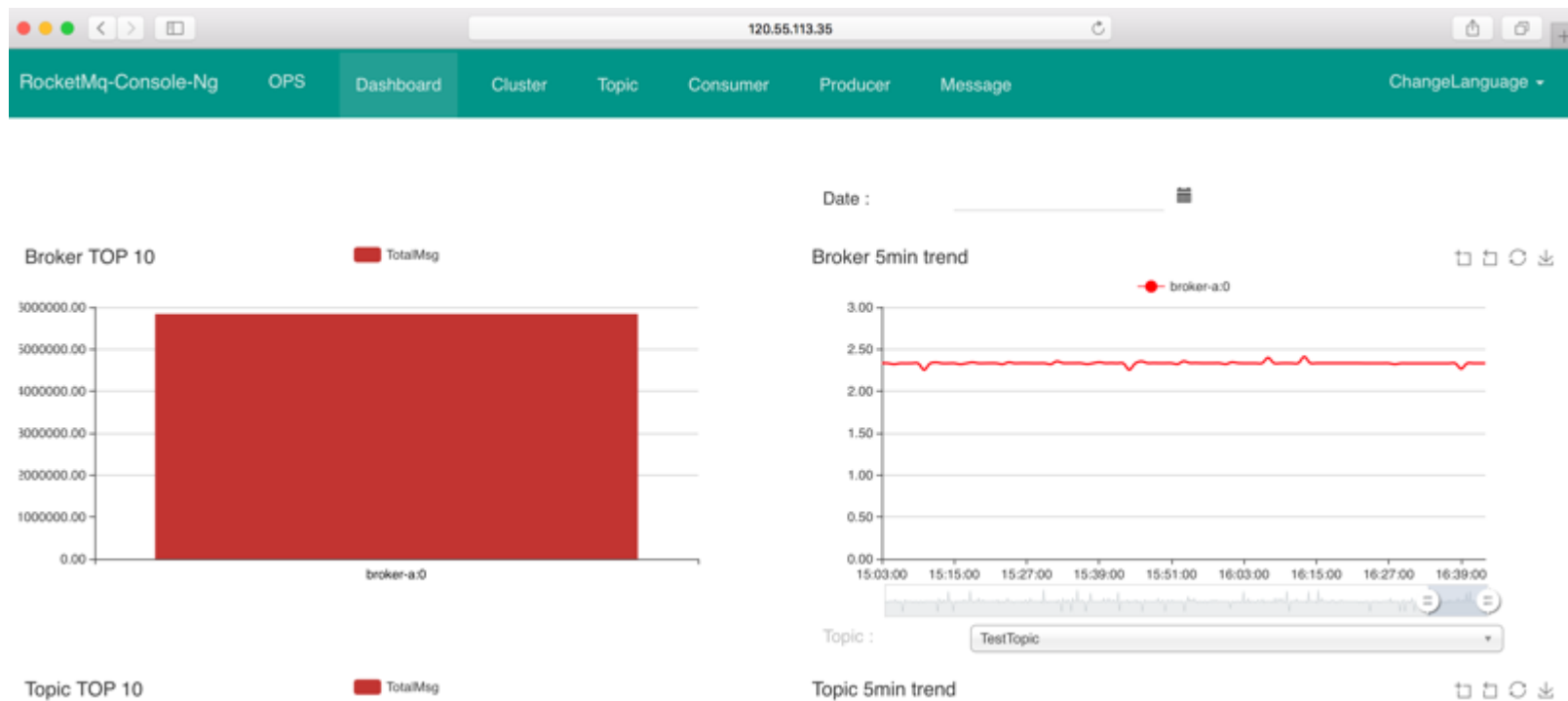


- ✓ Ordered and Non-Ordered message
- ✓ Broadcast message
- ✓ Scheduled message
- ✓ Transactional message
- ✓ Batched message
- ✓ One-way message
- ✓ Traceable message
- ✓ Retroactive message
- ✓ Message Filtering
- ✓ Massive Accumulation
- ✓ Backoff Strategy
- ✓ Delivery QoS
- ✓ Community features – console, docker, streaming etc.

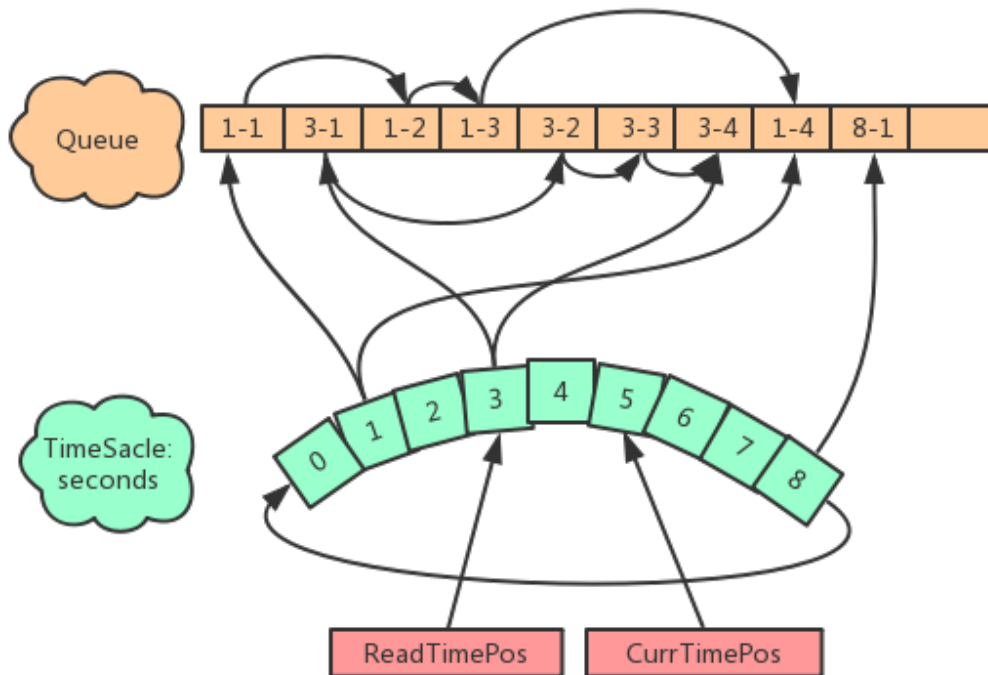




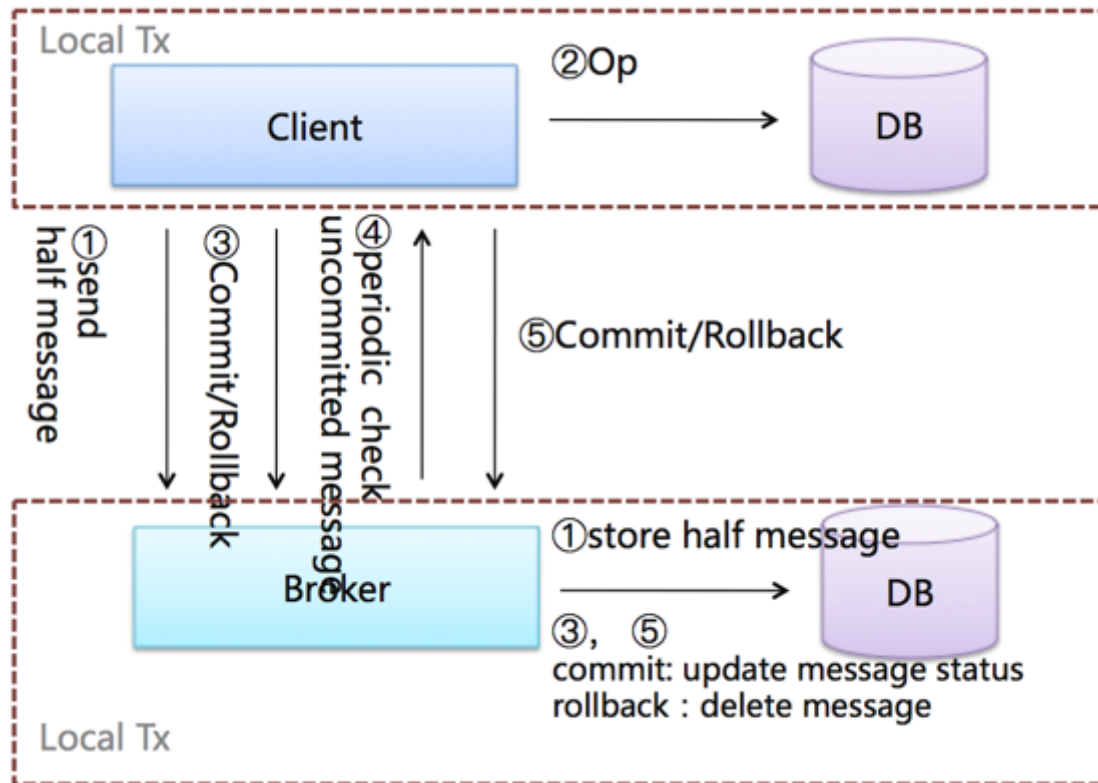
Console



Scheduled Message



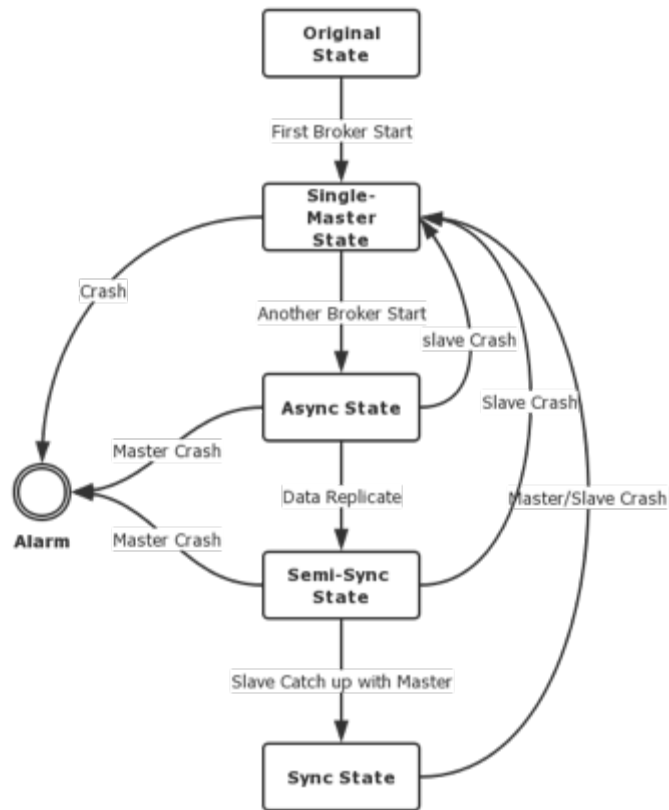
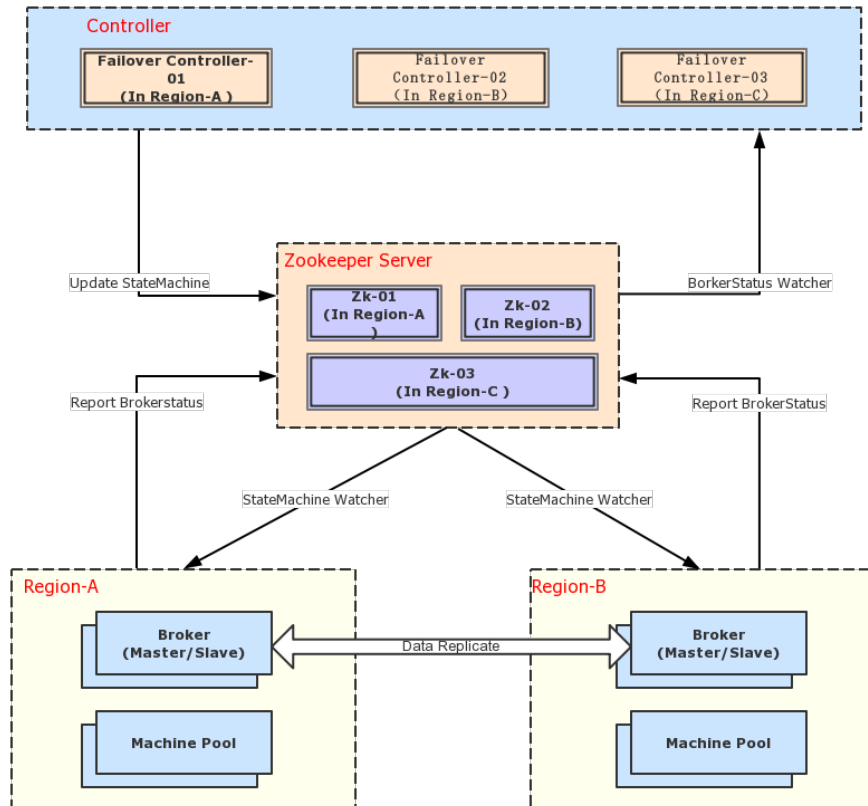
Transactional Message – Eventually Consistent





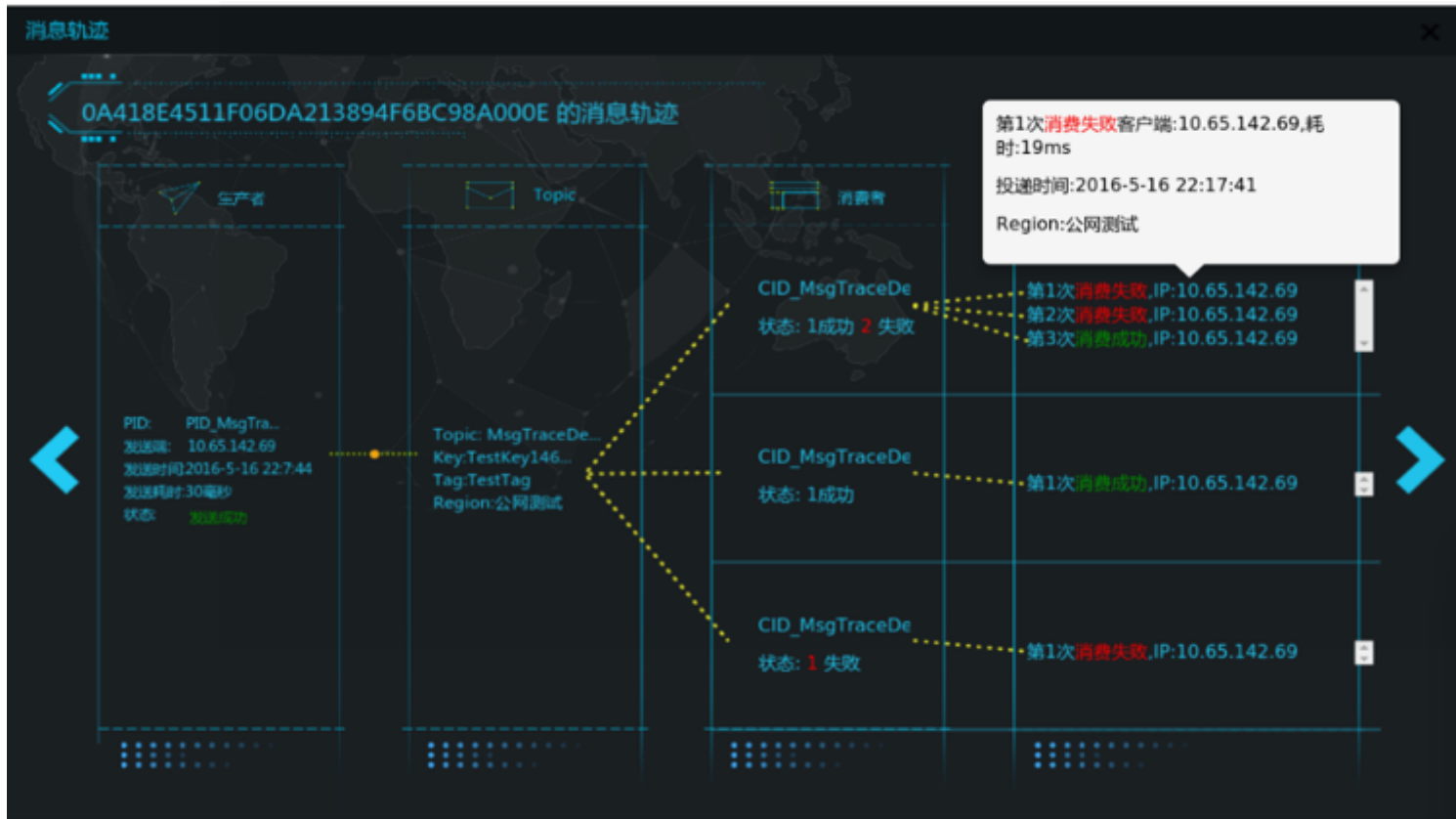
阿里中间件
Alibaba
Middleware

Commercial Features





Message Tracing Dashboard





Kafka Service

发布Topic



【商用Region】：提供可靠、稳定的服务，详细计费价格信息请点击 [\[计费价格信息\]](#)

【测试Region】：只提供公网测试时使用，已商用

*Topic:

1.只能包含字母、数字、短横线(-)和下划线(_)

于64字节将被自动截取

*消息类型:

无序消息
分区顺序消息
全局顺序消息
✓ kafka消息(公测中)

该类消息可以兼容 MQ 及 Kafka 协议(kafka-client-0.10 及以上版本)。具体详情请参考[\[接入文档\]](#)

*备注:

确定

取消

公测测试 华北1 华南1 华东1 华北2 华东2 新加坡

Topic管理

输入Topic

搜索

发布Topic

Topic	类型	服务状态	权限	创建时间	操作
kafka-one-test	kafka消息(公测中)	服务中	所有者	2017-03-20 17:45:23	申请发布 申请订阅 申请MQTT GroupID 删除 授权 查看授权 资源报表
kafka-proxy-test	无序消息	服务中	所有者	2017-02-09 14:54:50	申请发布 申请订阅 申请MQTT GroupID 删除 授权 查看授权 资源报表

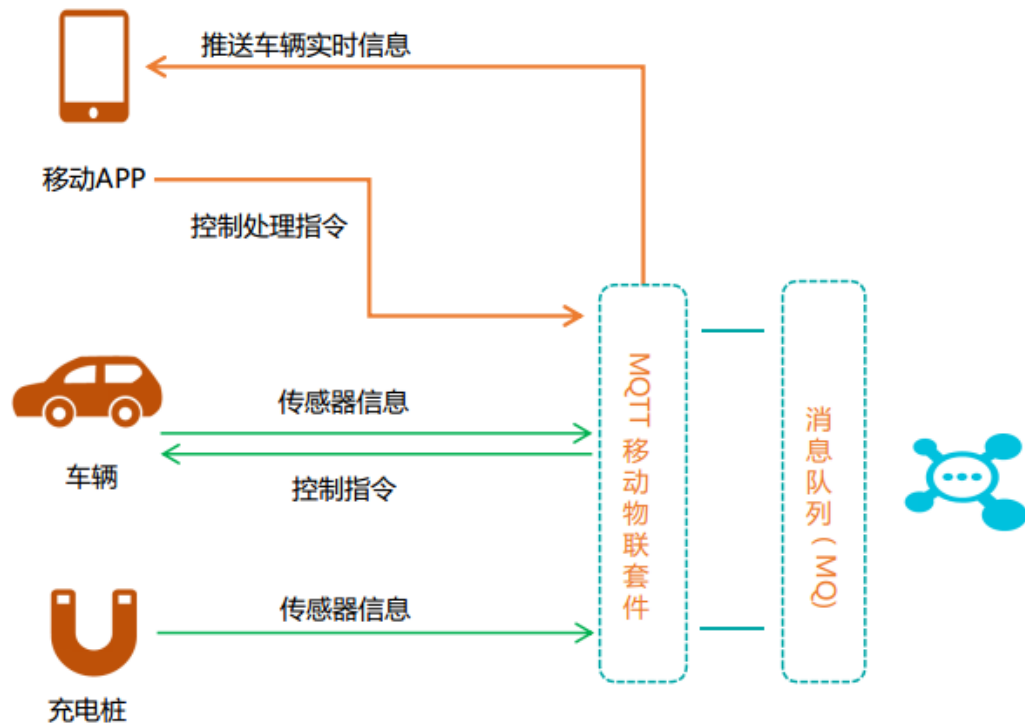
共有2条，每页显示：20条

1

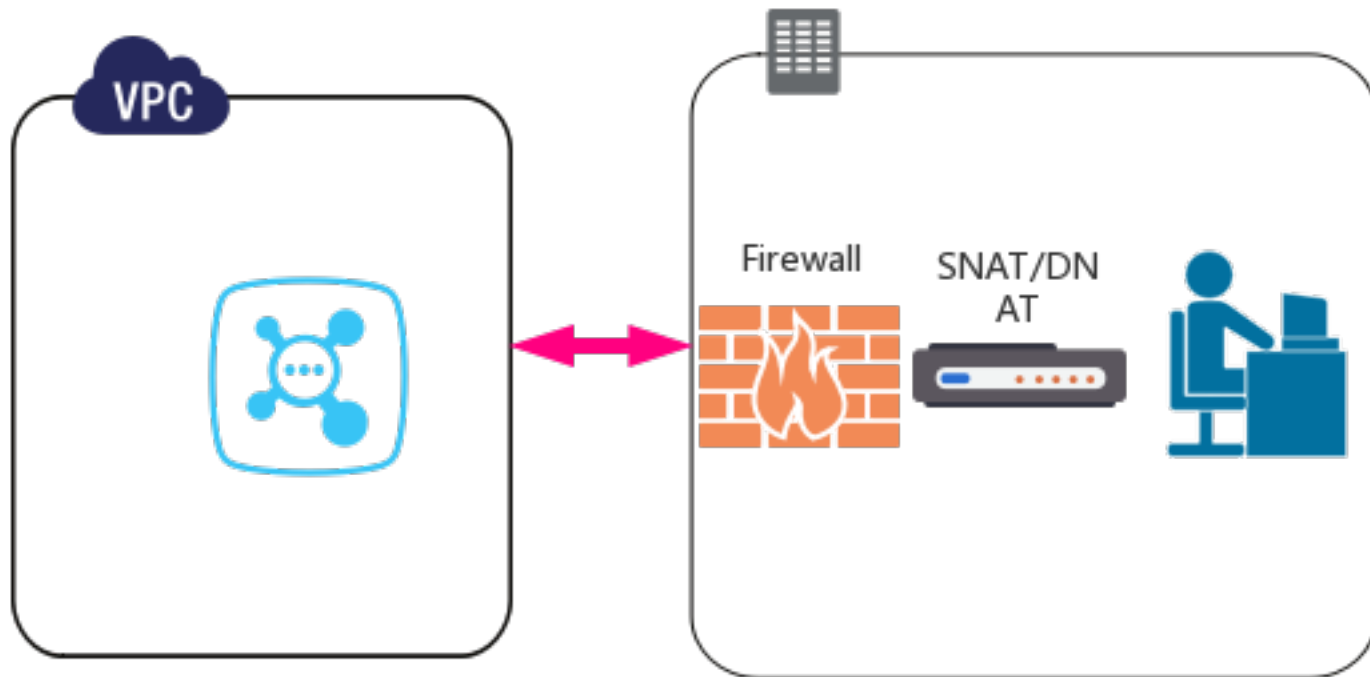


阿里中间件
Alibaba
Middleware

IoT - MQTT



Relay Service



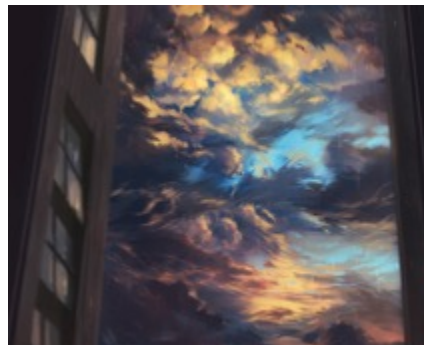


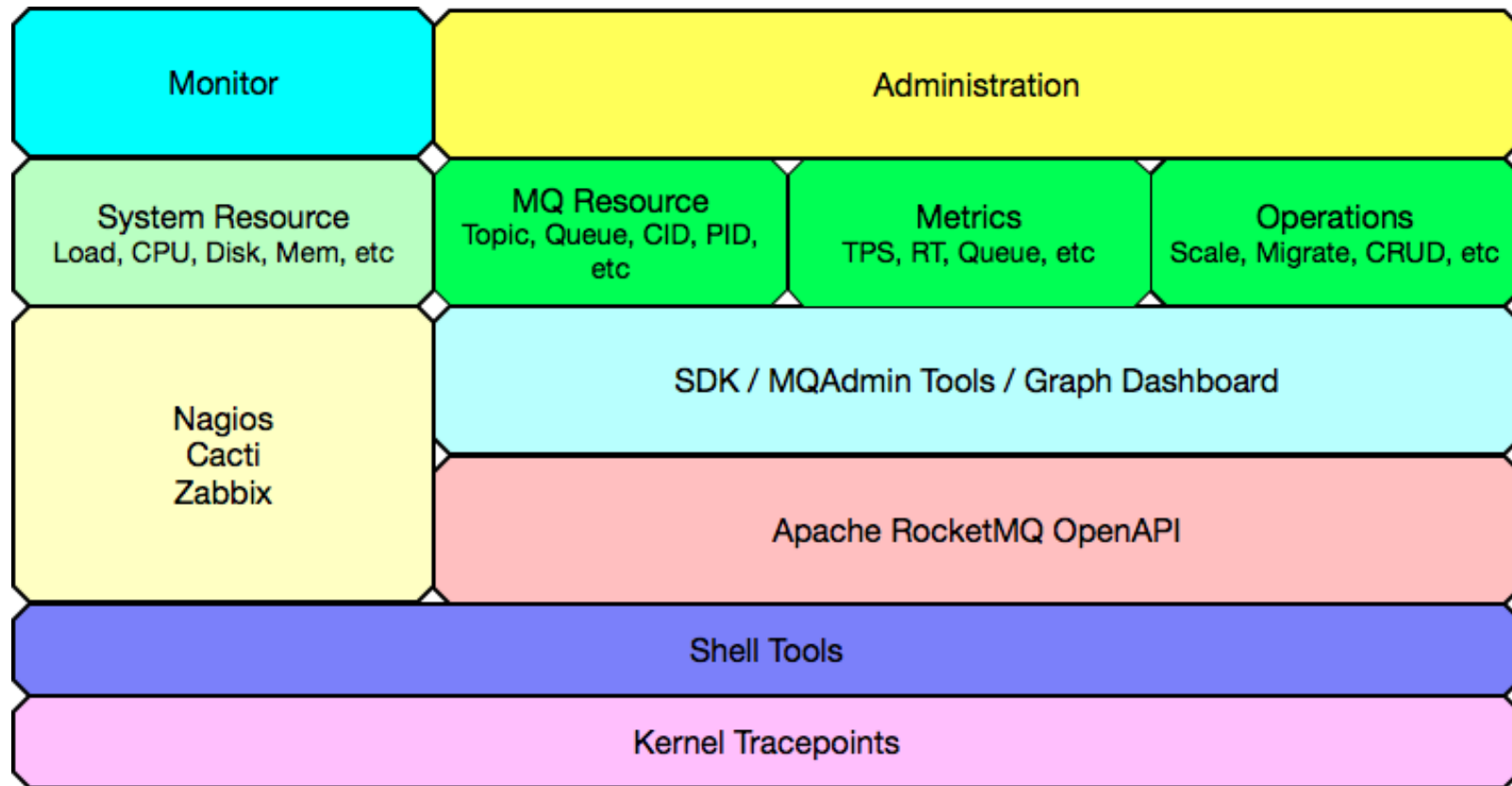
阿里中间件
Alibaba
Middleware

02

Monitoring and Administering

千磨万击还坚韧，任尔东西南北风







\$sh mqadmin

The most commonly used mqadmin commands are:

healthCheck health check

deleteSubGroup Delete subscription group from broker.

updateBrokerConfig Update broker's config

getBrokerConfig Get broker config by cluster or special broker

updateTopicPerm Update topic perm

topicRoute Examine topic route info

topicStatus Examine topic Status info

queryMsgById Query Message by Id

queryMsgByKey Query Message by Key

consumerProgress Query consumers's progress, speed

consumerStatus Query consumer's internal data structure

clusterList List all of clusters

resetOffsetByTime Reset consumer offset by timestamp(without client restart).

...

...



阿里中间件
Alibaba
Middleware

```
$sh mqadmin clusterlist
```

#Cluster Name	#Broker Name	#BID	#Addr	#Version	#InTPS(LOAD)
share	share-01	0	10.10.10.10:10911	V4_0_0	3840.73(0,0ms)
42.31 0.8394					7758.35(0,0ms)
share	share-02	1	10.10.10.11:10911	V4_0_0	3764.42(1,0ms)
82.97 0.3245					7734.55(1,0ms)



阿里中间件
Alibaba
Middleware

```
$sh mqadmin consumerstatus -g CID_SHOPPING -s
```

```
001 10.10.10.4@29077 V4_0_0 1493971139224/10.10.10.4@29077#-1244857759#-  
163453988#14074607828995785  
002 10.10.10.2@28953 V4_0_0 1493971139224/10.10.10.2@28953#-1244857759#-  
163453988#14074505387423377  
003 10.10.10.1@11865 V4_0_0 1493971139224/10.10.10.1@11865#-1244857759#-  
163453988#14074508601484056  
004 10.10.10.3@23180 V4_0_0 1493971139224/10.10.10.3@23180#-1244857759#-  
163453988#14074400788700508
```



阿里中间件
Alibaba
Middleware

```
$sh mqadmin querymsgbykey -k Query_Key -t ORDER_TOPIC
```

#Message ID

707C8CC435FE3FD00E77180D7FCB0B24

#QID

0

#Offset

1



阿里中间件
Alibaba
Middleware

```
$sh mqadmin querymsgbyuniquekey -i 707C8CC435FE3FD00E77180D7FCB0B24 -t  
ORDER_TOPIC  
Topic:          ORDER_TOPIC  
Tags:           [ApacheCon]  
Keys:           [Query_Key]  
Queue ID:       0  
Queue Offset:   1  
CommitLog Offset: 148053682794  
Reconsume Times: 0  
Born Timestamp: 2017-05-05 16:05:37,867  
Store Timestamp: 2017-05-05 16:05:37,880  
Born Host:      10.143.33.157:42775  
Store Host:     10.151.203.124:10911  
System Flag:    0  
Properties:      {TRACE_ON=true, KEYS=Query_Key, MSG_REGION=cn-hangzhou,  
UNIQ_KEY=707C8CC435FE3FD00E77180D7FCB0B24, TAGS=ApacheCon}  
Message Body Path: /tmp/rocketmq/msgbodies/707C8CC435FE3FD00E77180D7FCB0B24
```

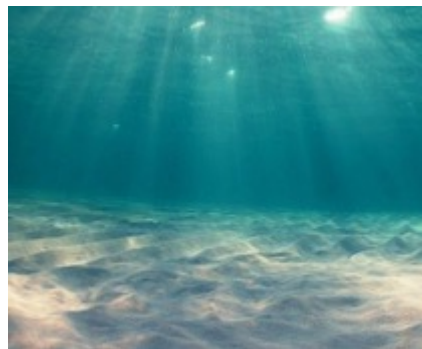


阿里中间件
Alibaba
Middleware

03

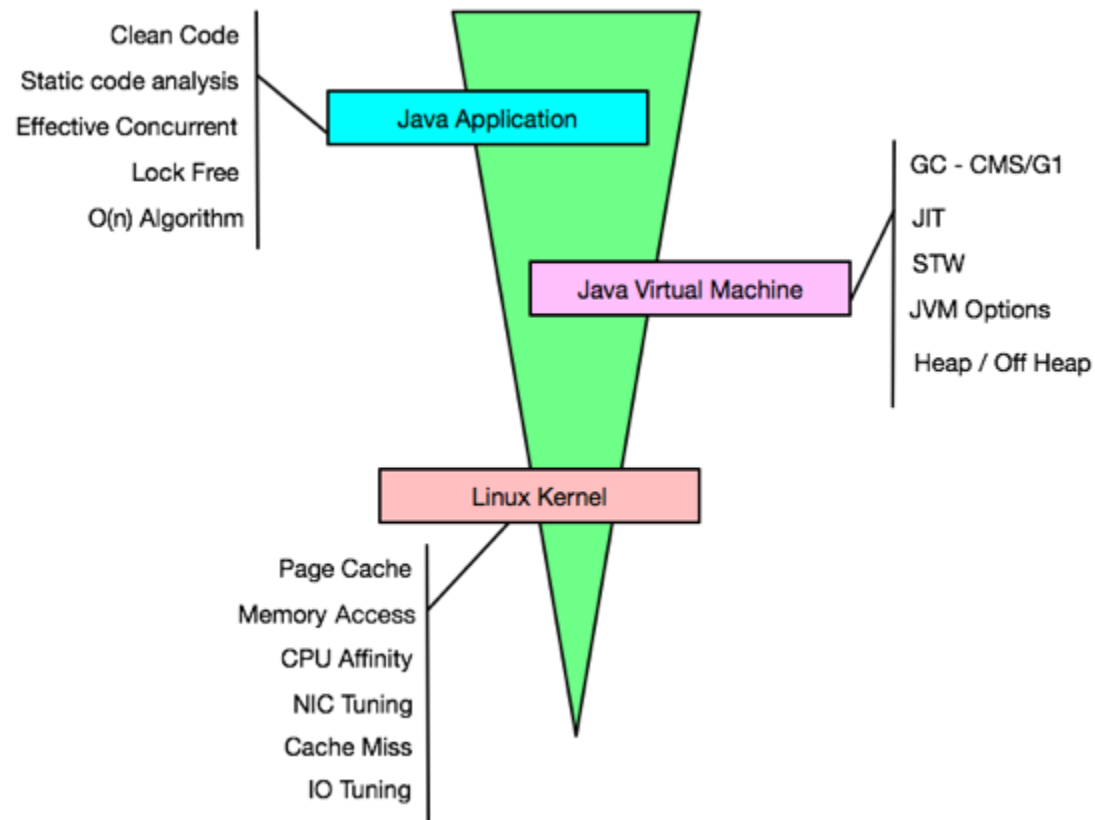
Performance Tuning

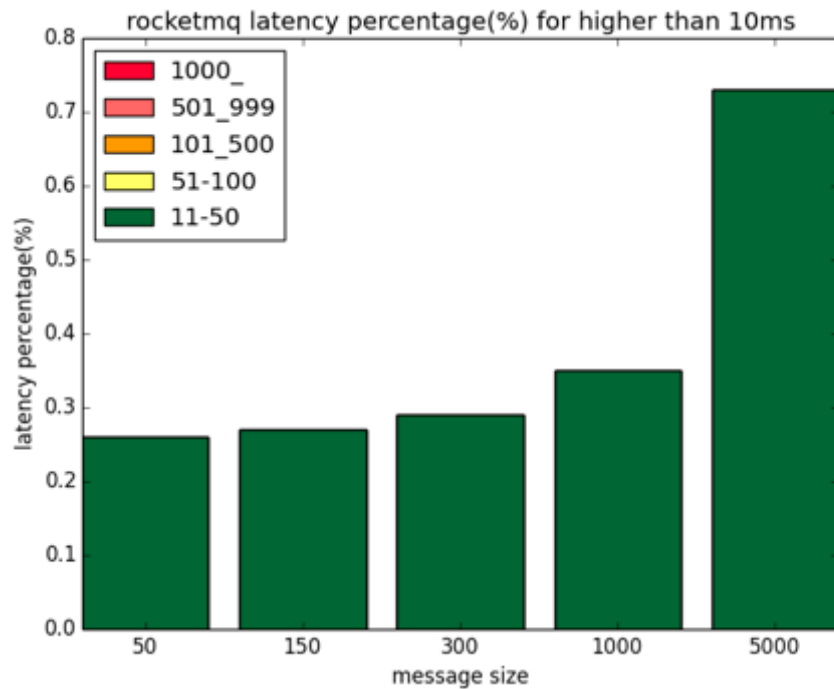
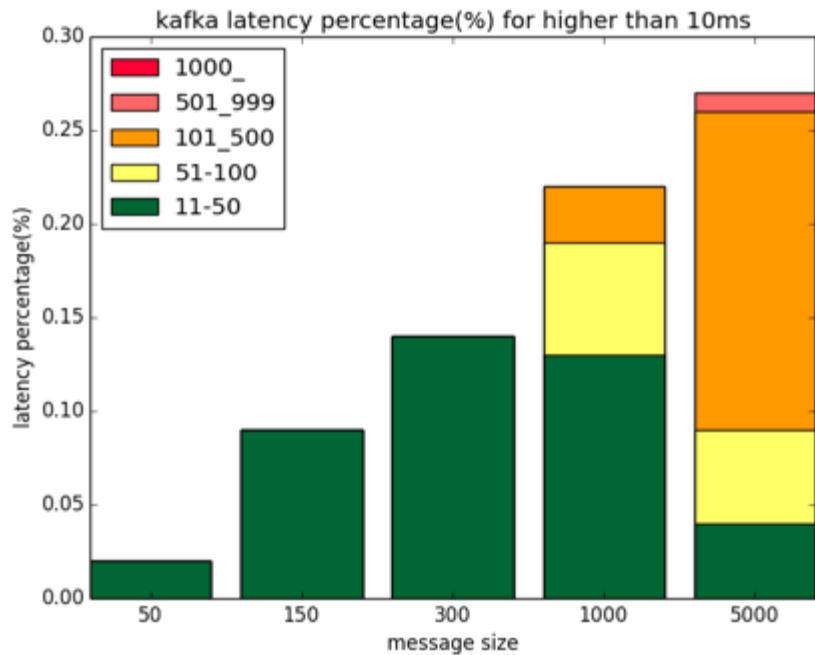
行路难，行路难，多歧路，今安在。
长风破浪会有时，直挂云帆济沧海。





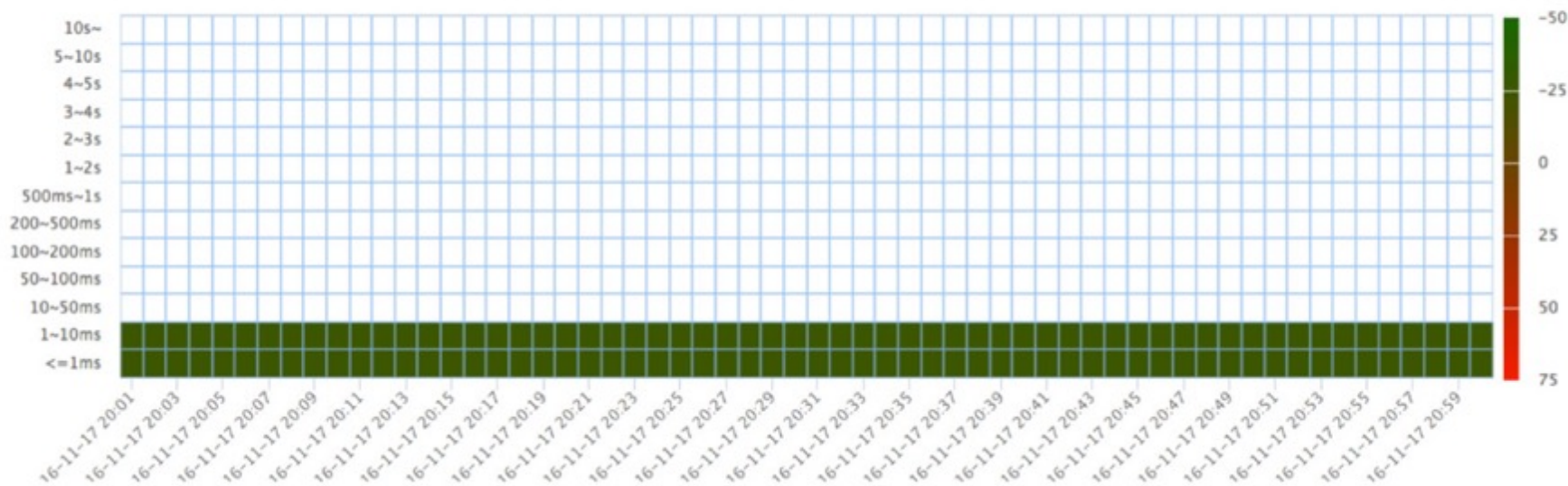
阿里中间件
Alibaba
Middleware





RocketMQ vs. Kafka

RocketMQ latency distribution heat map





阿里中间件
Alibaba
Middleware

04

RocketMQ 4.X

咬定青山不放松，立根原在破岩中





E-Commerce



High Concurrency
High Reliability



Finance



IoT



Massive Online Devices
High Throughput

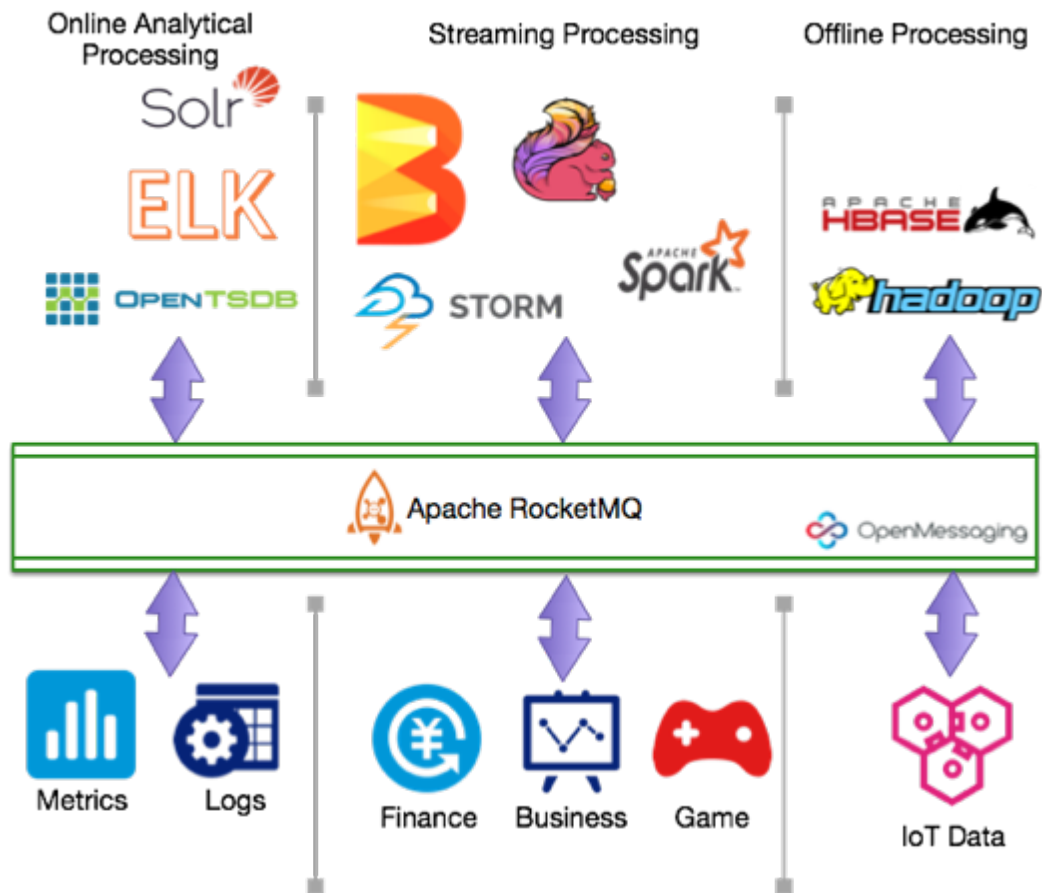


BigData





阿里中间件
Alibaba
Middleware





阿里中间件
Alibaba
Middleware



OpenMessaging

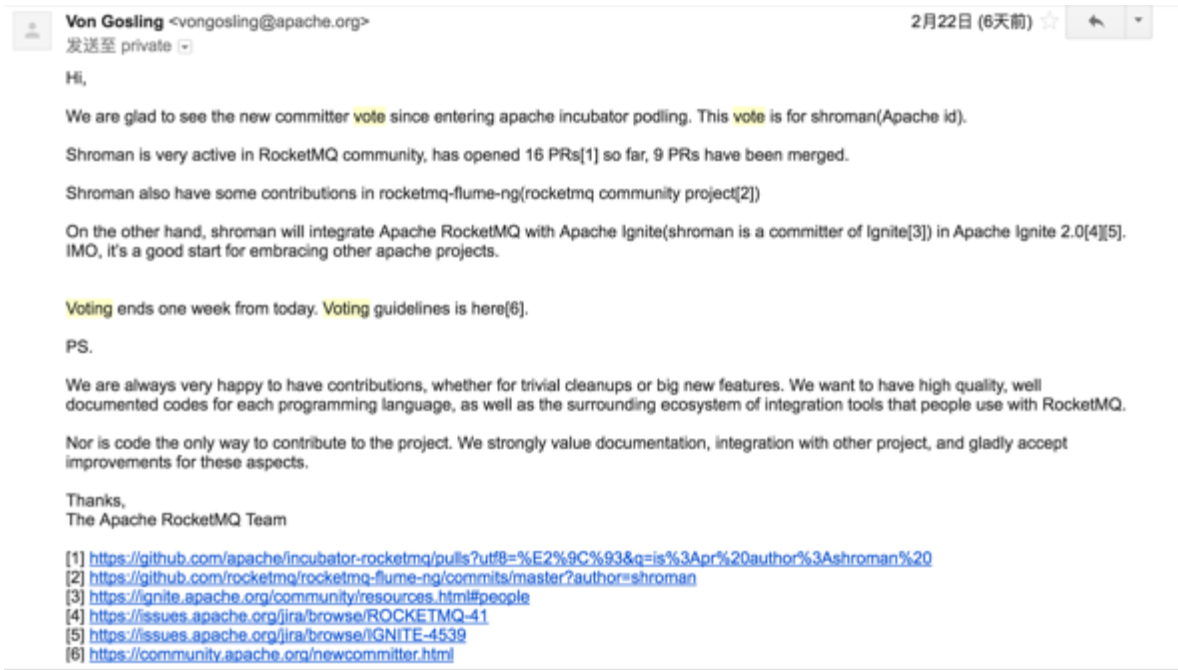
A vendor-neutral open standard for distributed messaging and streaming

OpenMessaging, which includes the establishment of industry guidelines and messaging, streaming specifications to provide a common framework for finance, e-commerce, IoT and big-data area. The design principles are the cloud-oriented, simplicity, flexibility, and language independent in distributed heterogeneous environments. Conformance to these specifications will make it possible to develop a heterogeneous messaging applications across all major platforms and operating systems.



Apache RocketMQ Community

- ✓ Workshop, Meetup
- ✓ Code Marathon
- ✓ Community Merit





阿里中间件
Alibaba
Middleware

谢谢 THANKS!

Alibaba Middleware

Recommended Latest Articles :

1. From Alibaba to Apache: RocketMQ' s Past, Present, and Future. [InfoQ](#)
2. Apache RocketMQ背后的设计思路与最佳实践. [云栖社区](#)
3. 专访RocketMQ联合创始人：项目思路、技术细节和未来规划. [InfoQ](#)
4. 万亿级数据洪峰下的分布式消息引擎. [电子书节选章节](#)
5. 捐赠Apache背后那些鲜为人知的故事. [中间件博客节选](#)

© 2017 Alibaba Middleware Group



沙加

浙江 杭州



扫一扫上面的二维码图案，加我微信