Apache RocketMQ – Trillion Messaging in Practice

周新宇(花名：尘央)

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PROFILE

MCS, has rich experience in distributed system design and performance tuning, especially in messaging system, cloud computing, etc.

Software craftsman, engineer at alibaba.

Open source fanatic, Apache RocketMQ PPMC member & committer.

Xinyu Zhou, Email: yukon@apache.org

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From Alibaba to Apache

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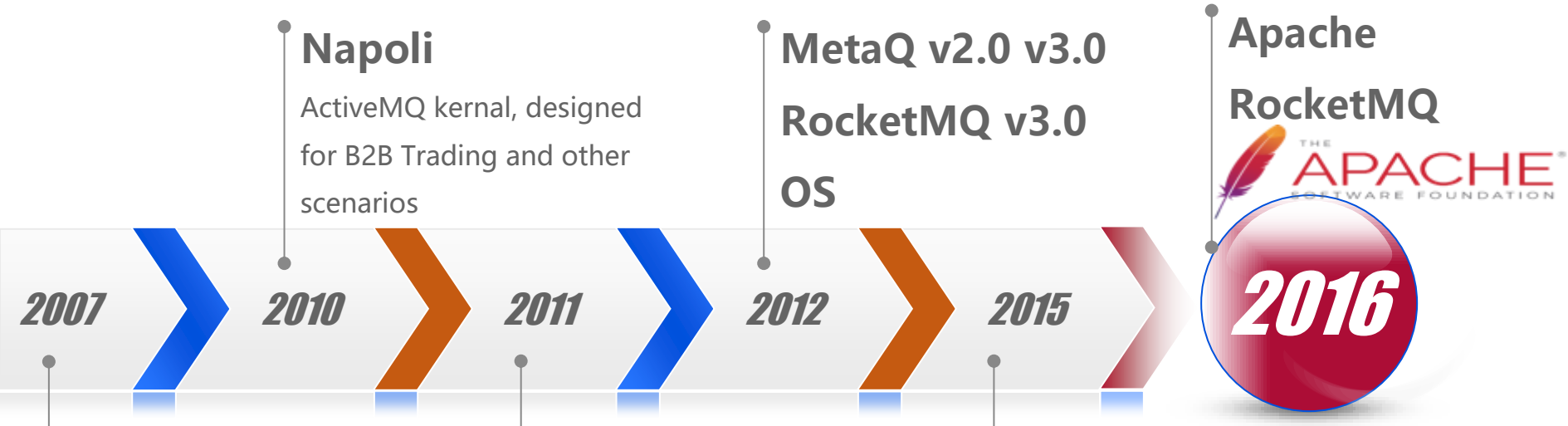

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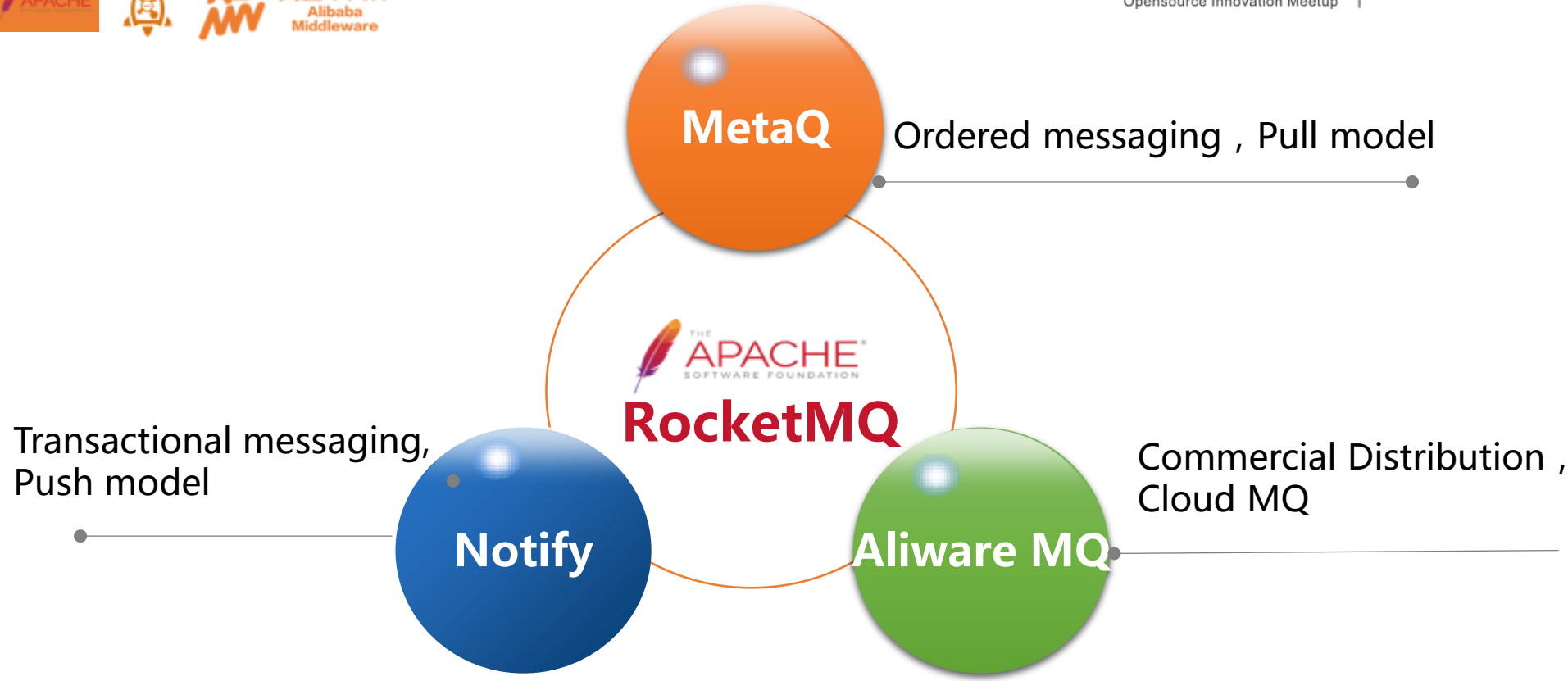

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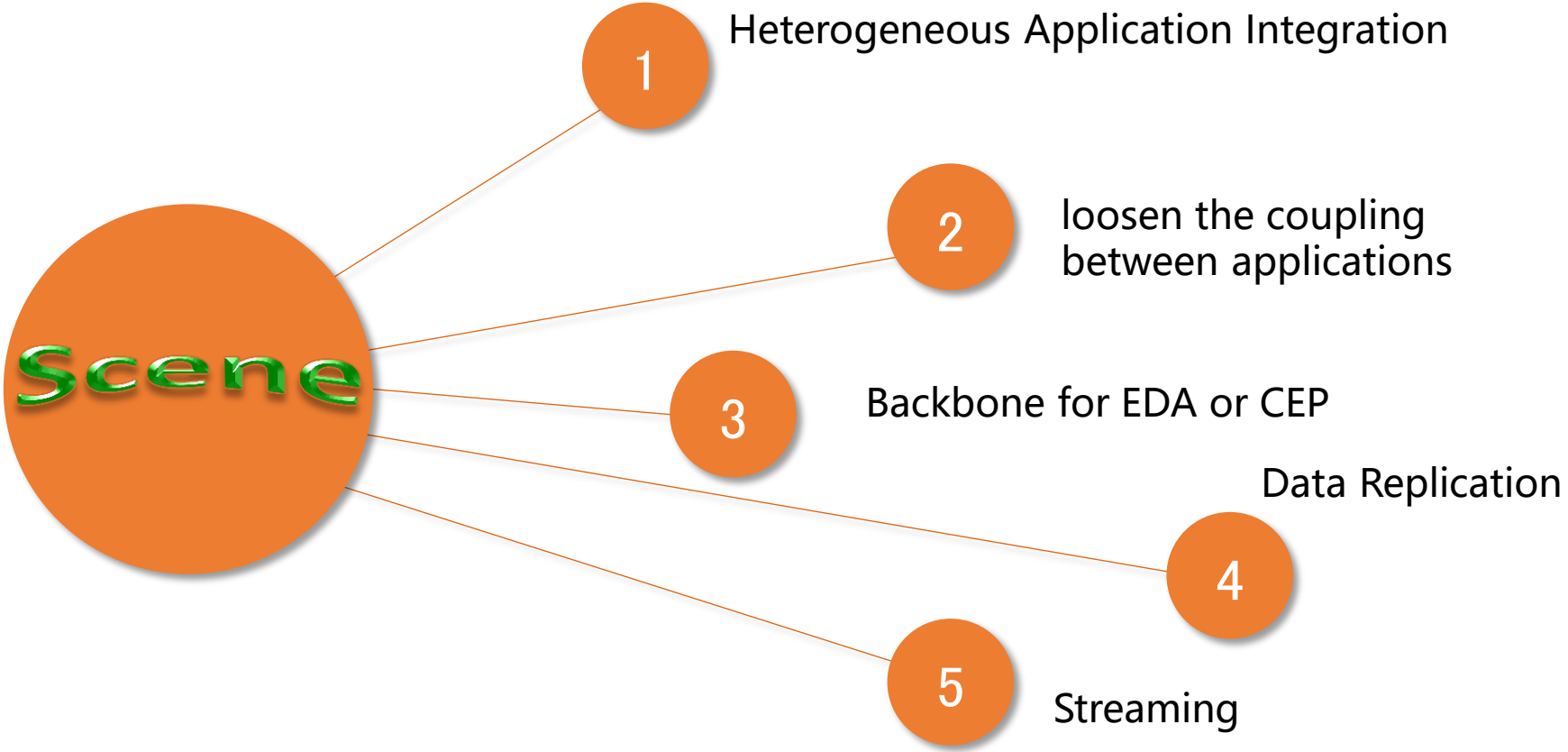

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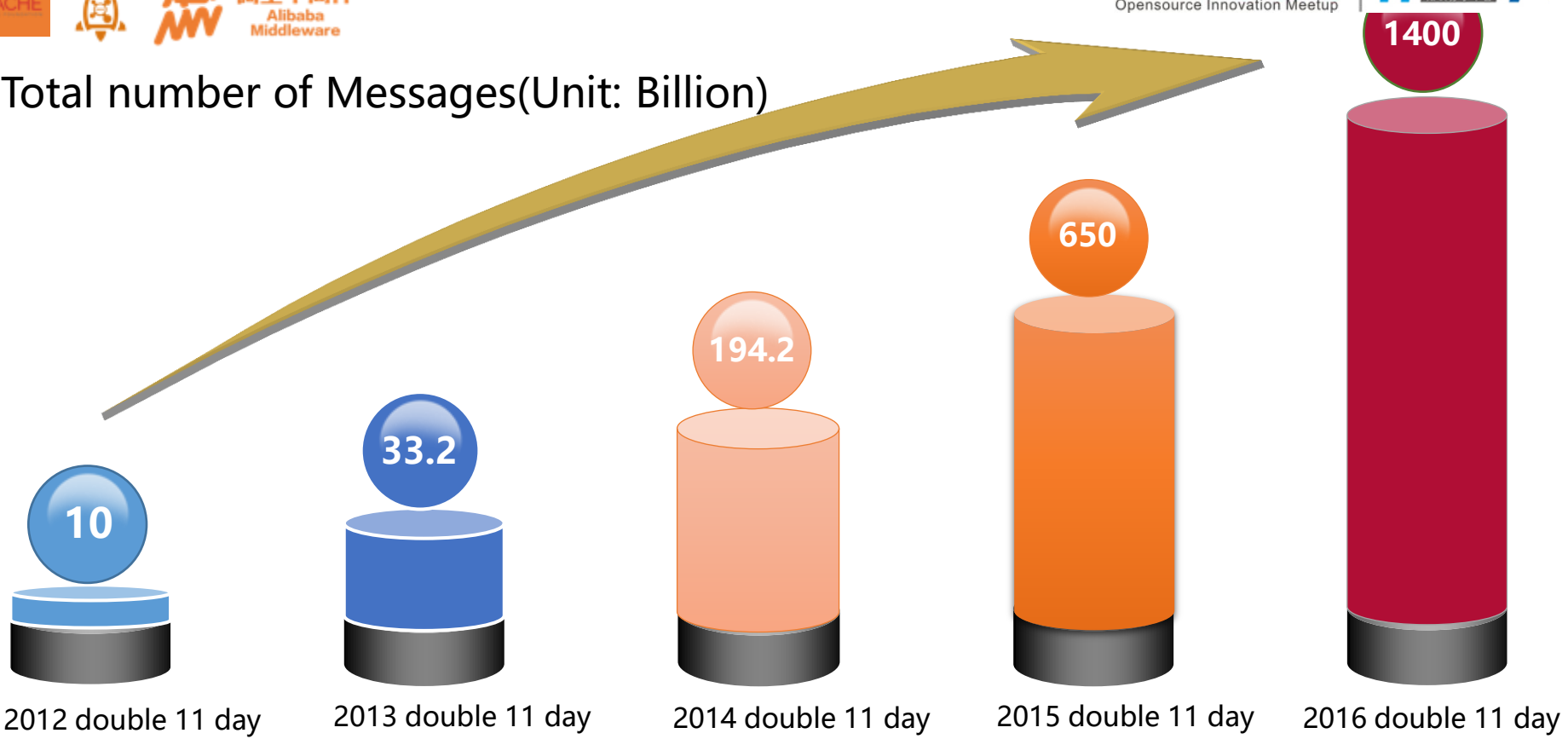
Total number of Messages(Unit: Billion)



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APACHE

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What's Next

Apache RocketMQ in Practice

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01 Architecture and Features

02 Monitoring and Administering

03 Performance Tuning

04 Apache RocketMQ 4.X

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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……

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Architecture

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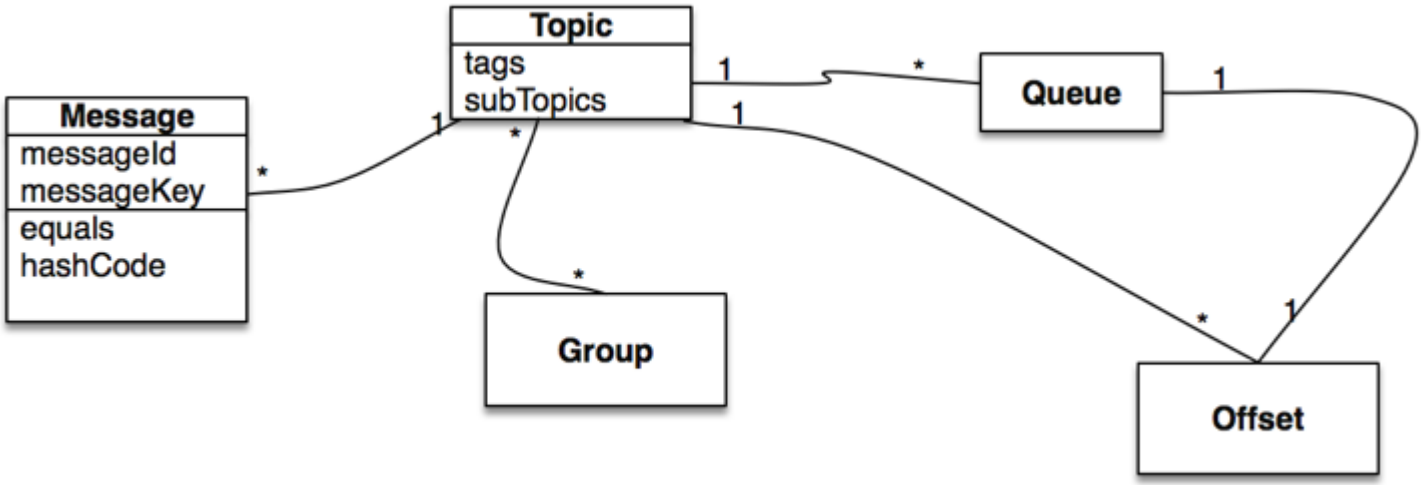

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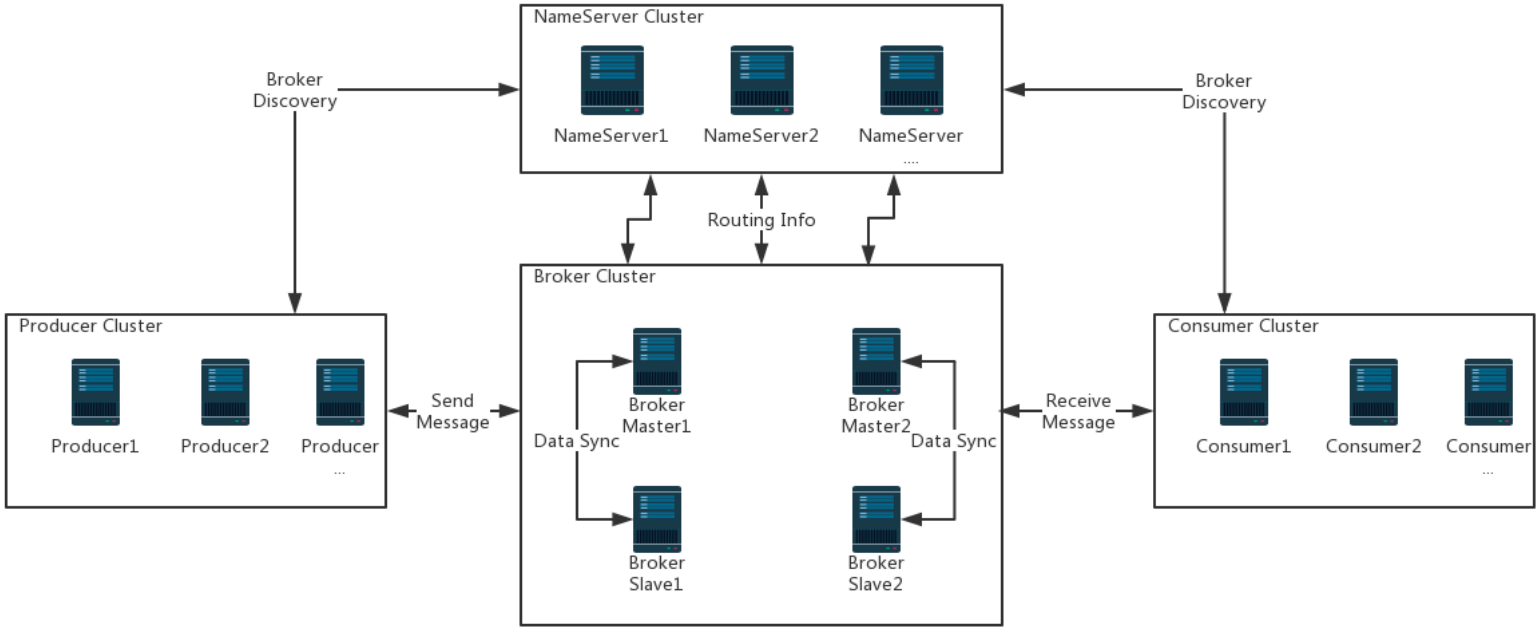

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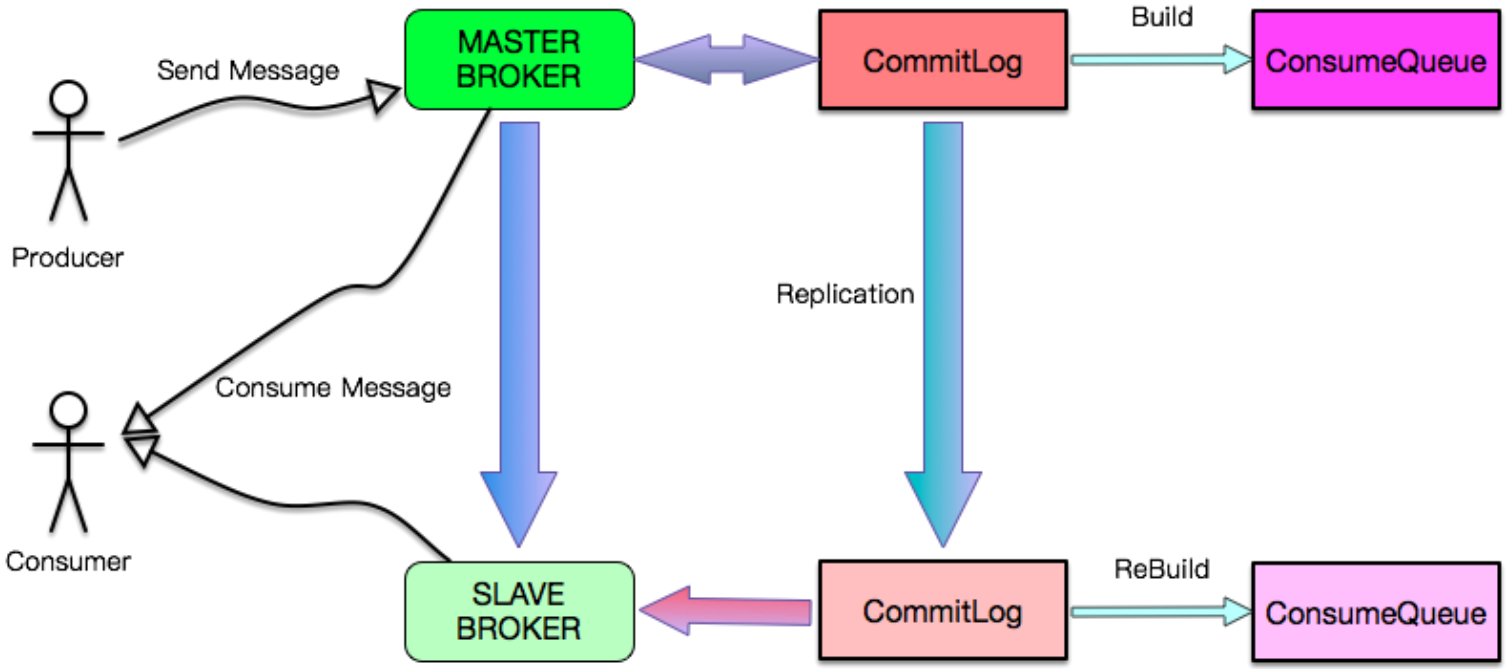

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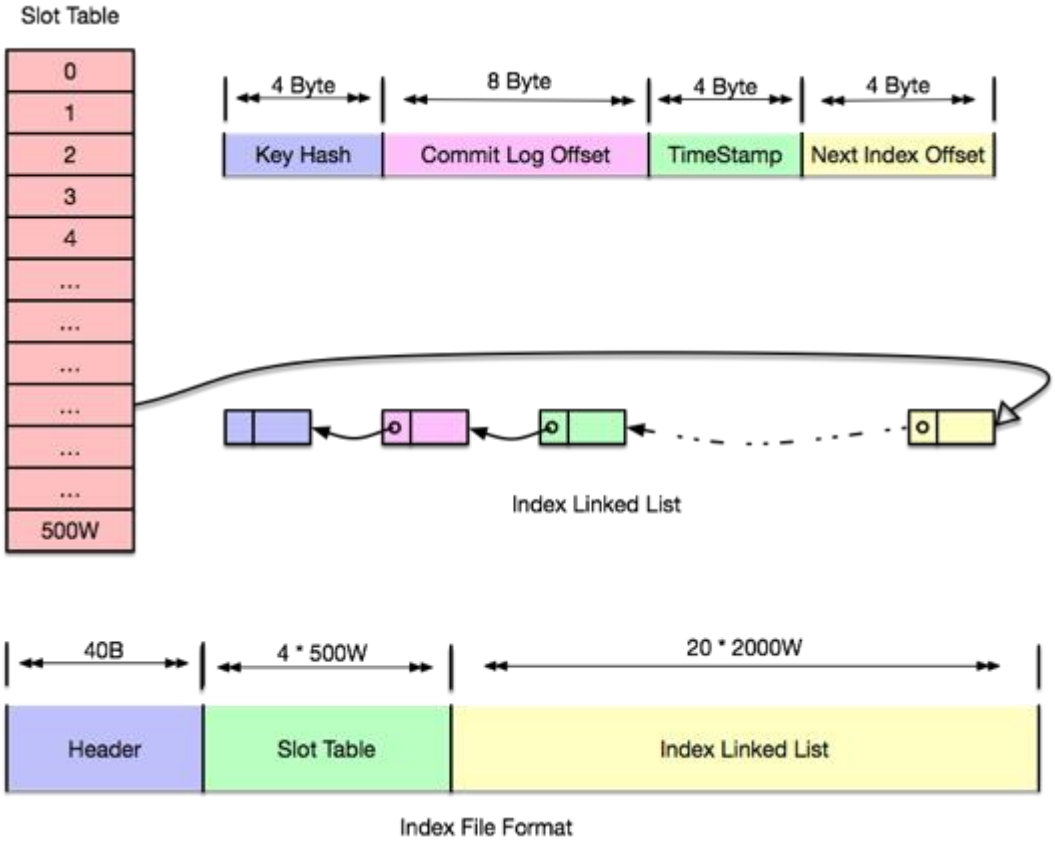

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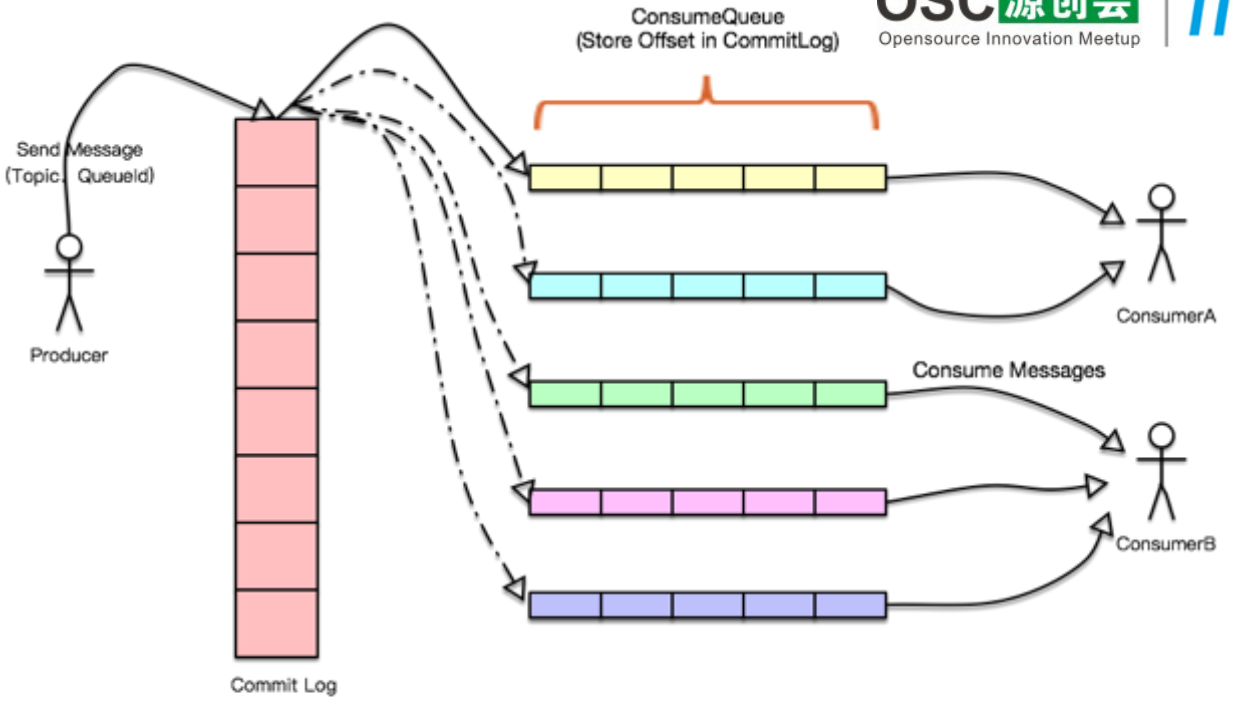

ConsumeQueue Record Format

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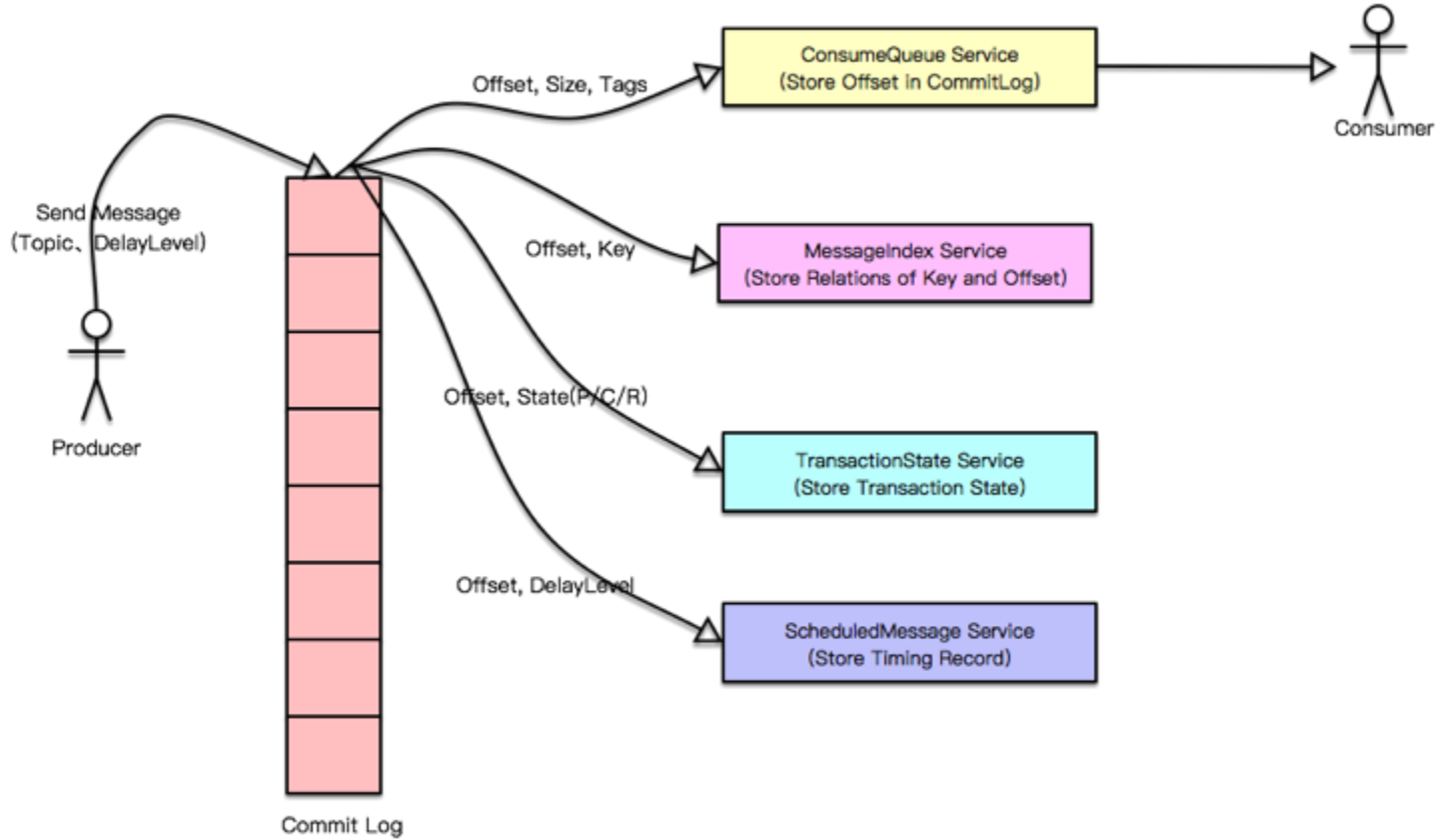

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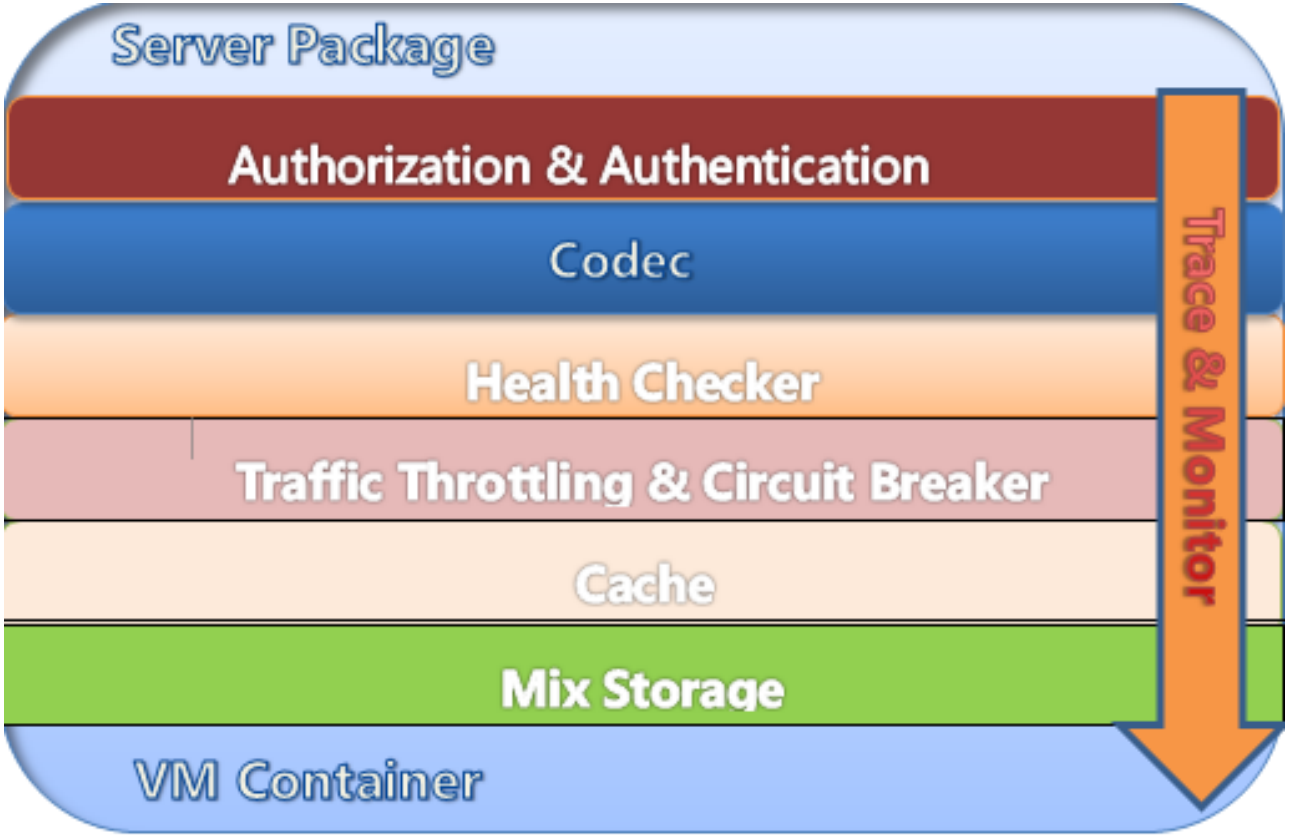

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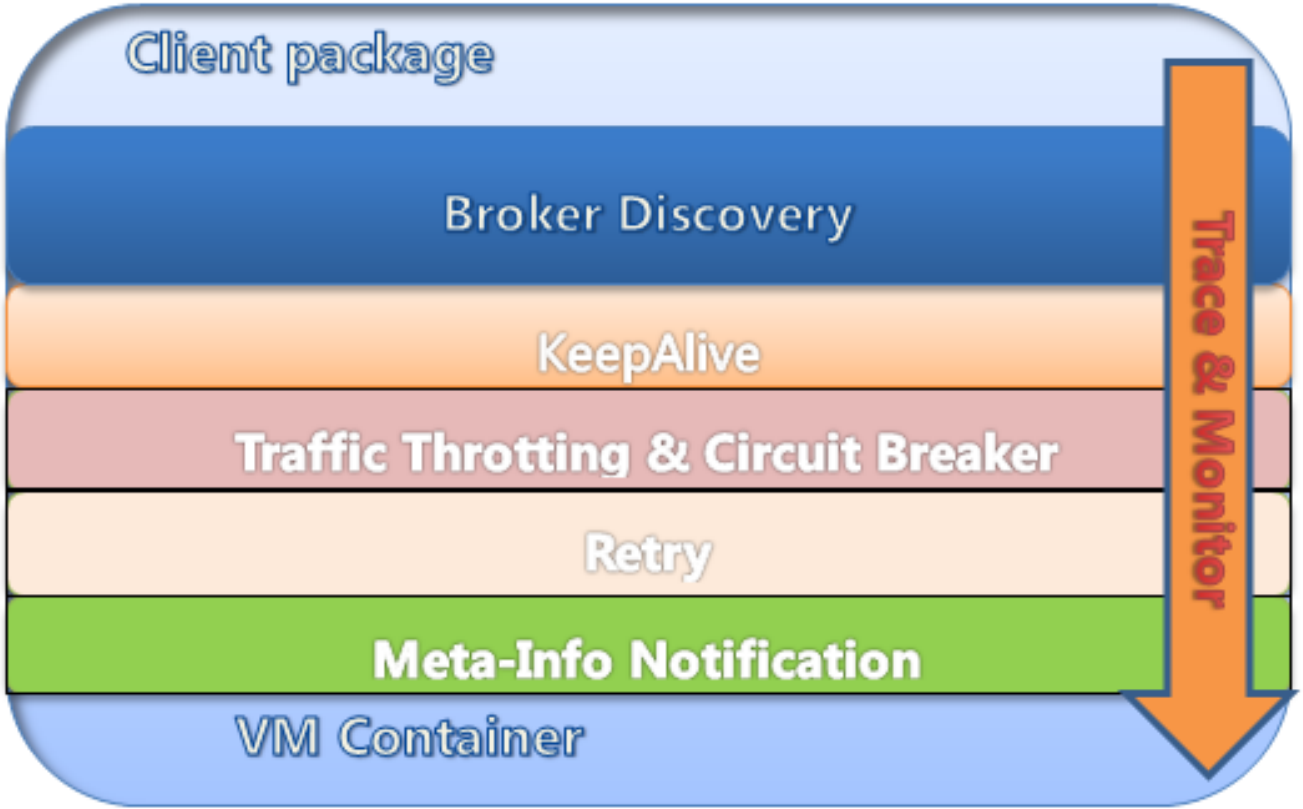

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Community Features

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- ✓ 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.

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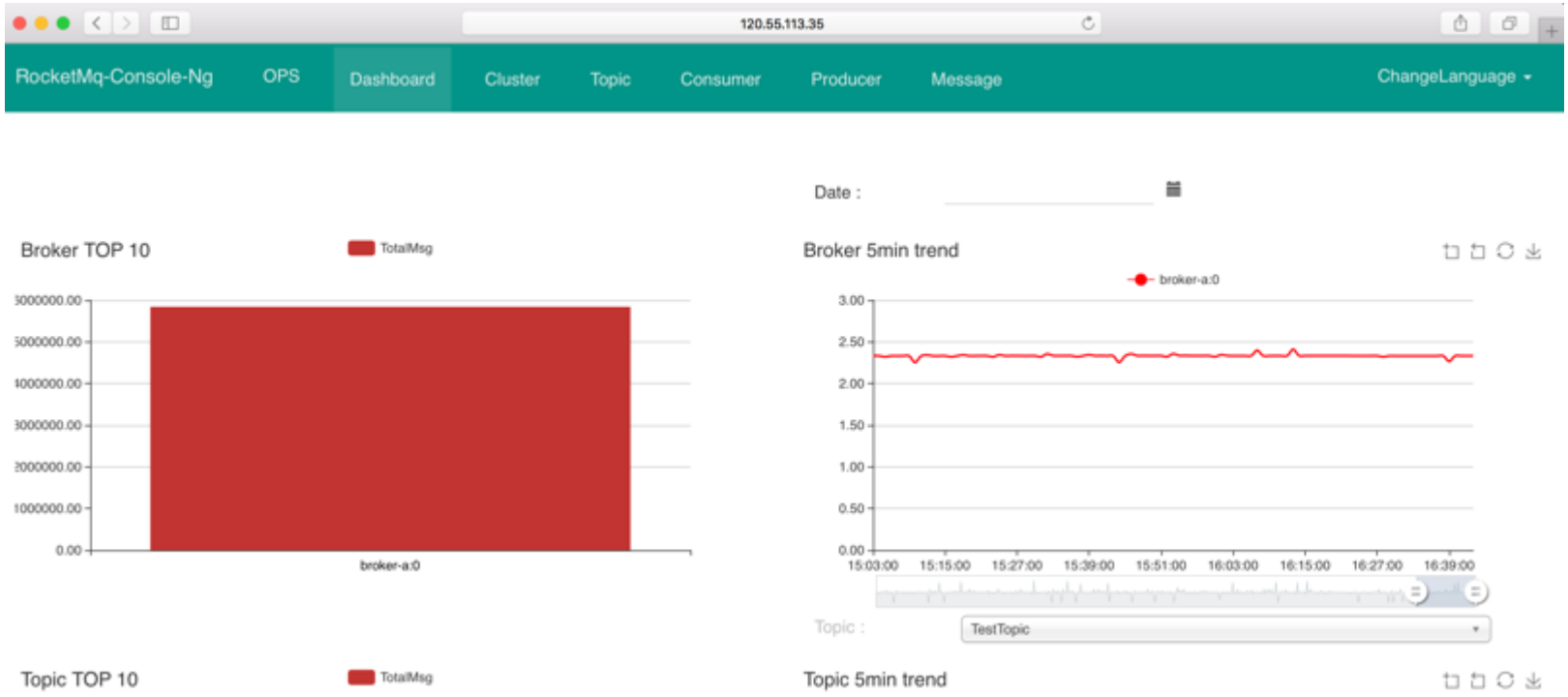
Console



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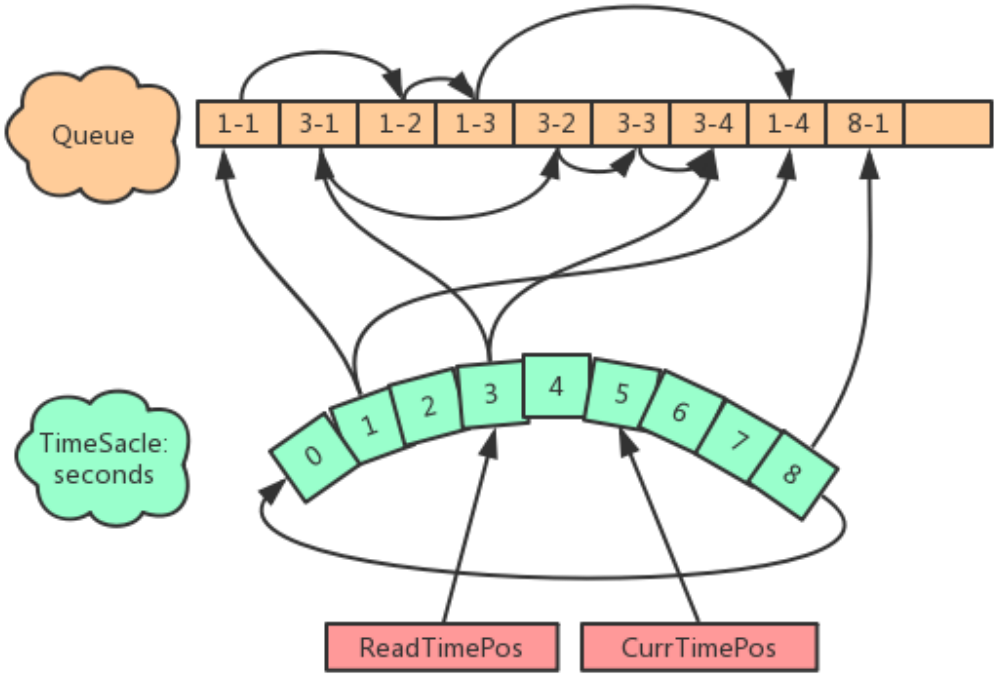
Scheduled Message



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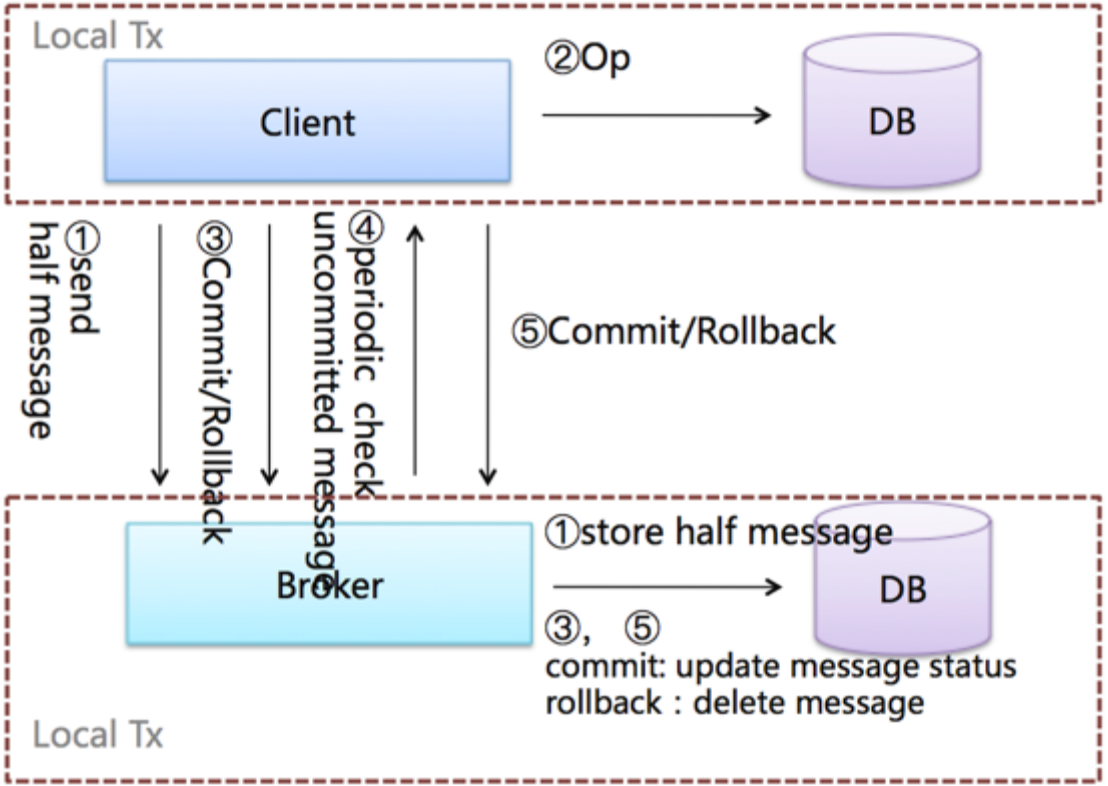
Transactional Message – Eventu



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Commercial Features

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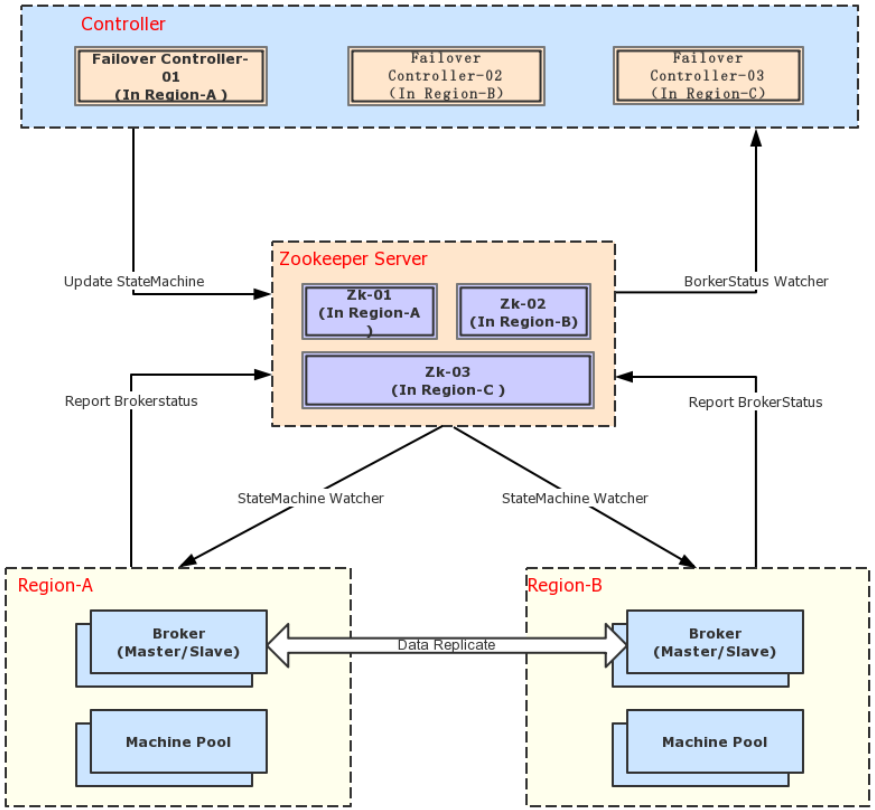
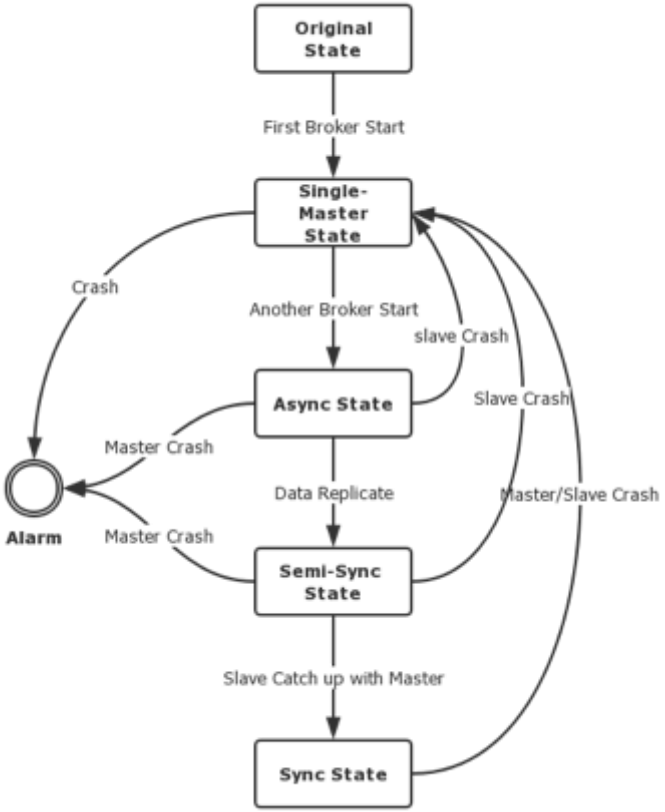
HA





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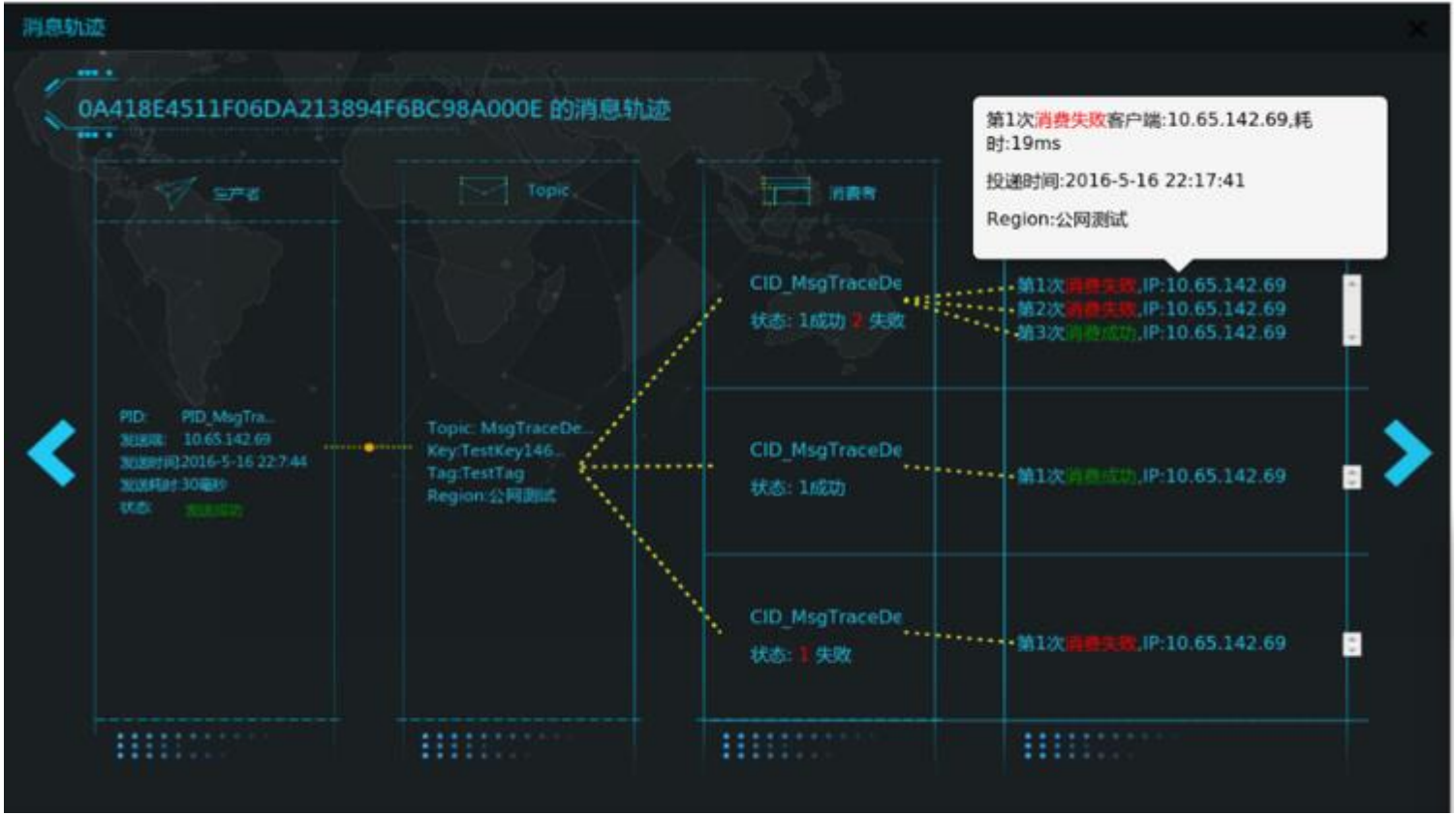
Message Tracing Dashboard



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Kafka Service

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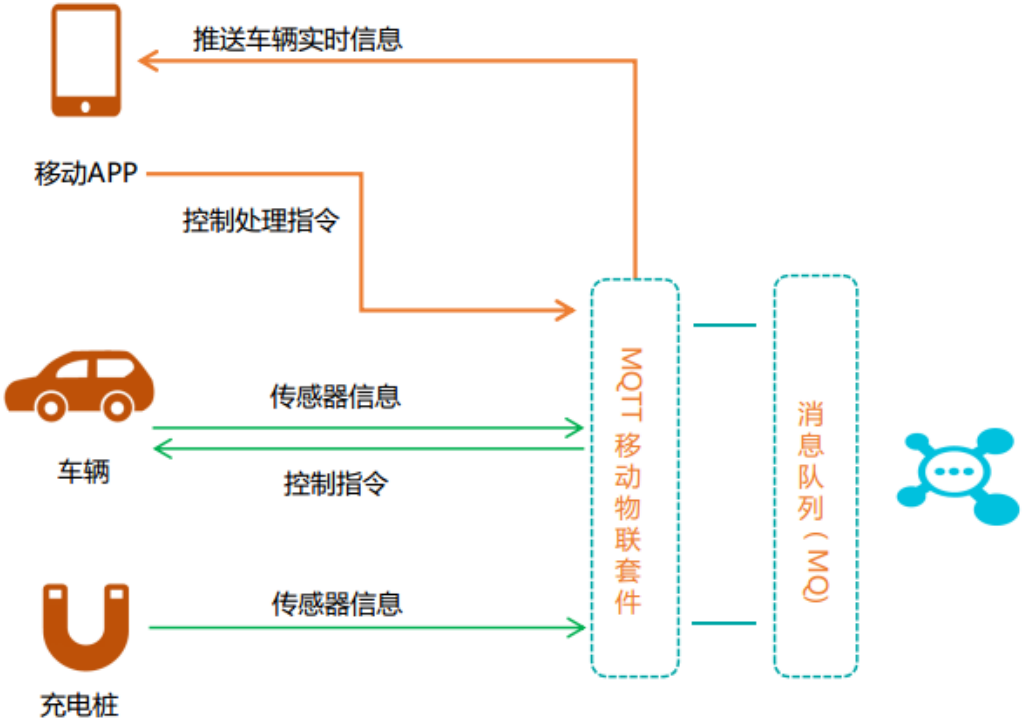
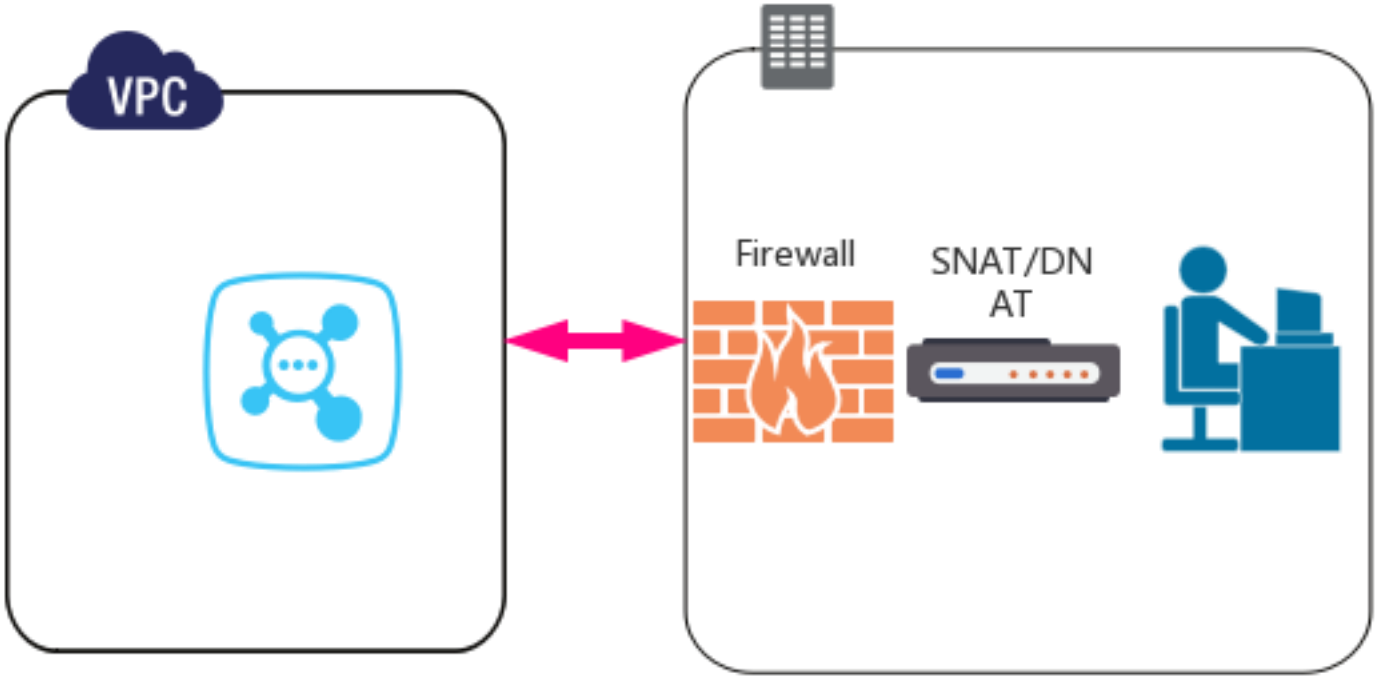
IoT - MQTT


推送车辆实时信息
移动APP
控制处理指令
传感器信息
车辆
控制指令
传感器信息
充电桩
MQTT 移动物联套件
消息队列（MQ）

Relay Service



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02 Monitoring and Administering

千磨万击还坚韧，任尔东西南北风

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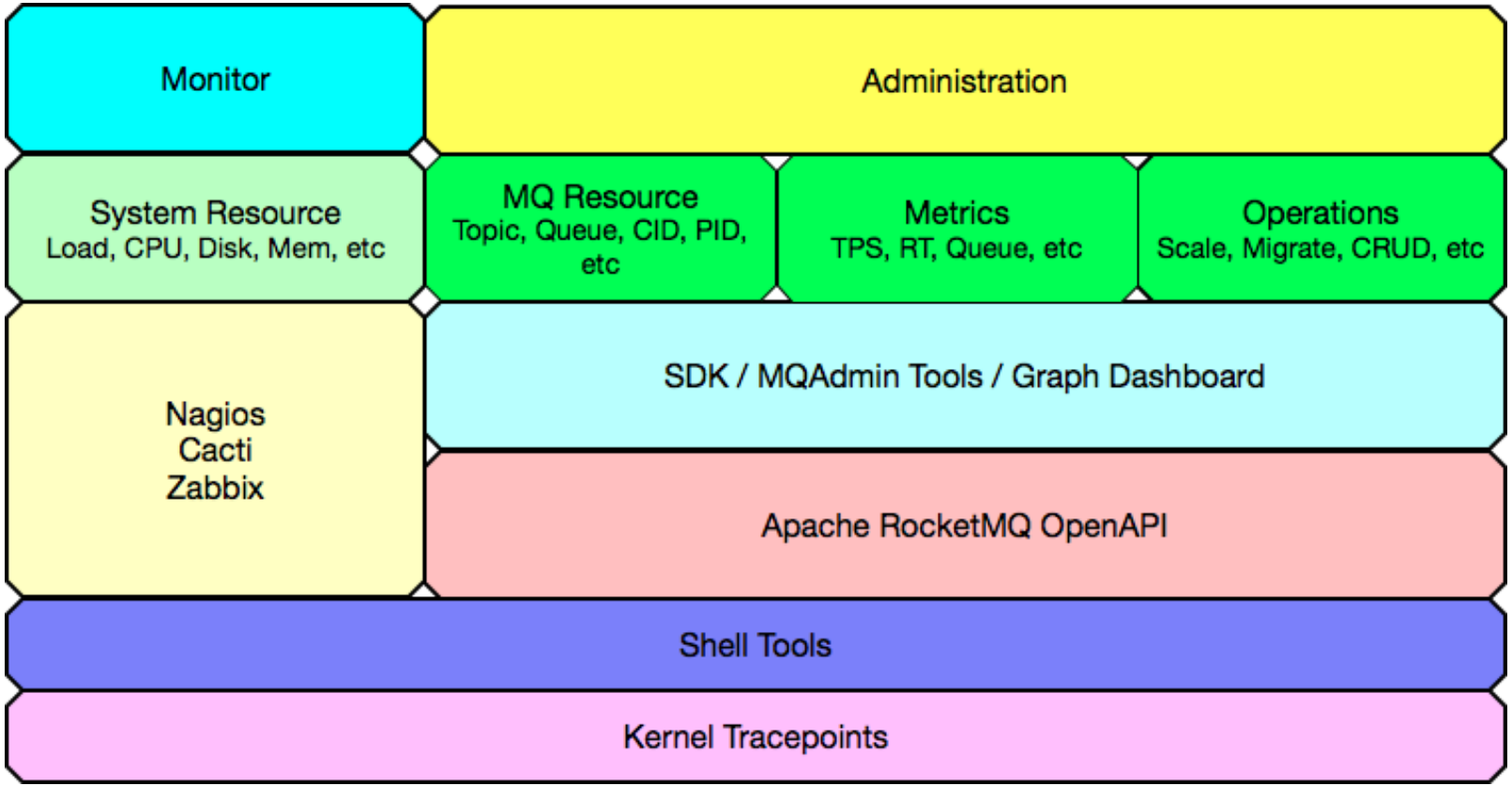

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$sh mqadmin
The most commonly used mqadmin commands are:
healthCheck health check
deleteSubGroup Delete subscription group from broker.
updateBrokerConfig Update broker's config
getBrokerConfig Get broker config by cluster or special broker
updateTopicPerm 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).
…
…

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$sh mqadmin clusterlist

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

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$sh mqadmin consumerstatus -g CID_SHOPPING -s

001 10.10.10.4@29077 V4_0_0 1493971139224/10.10.10.4@29077#-1244857759#-163453988#1407460782899578 5
002 10.10.10.2@28953 V4_0_0 1493971139224/10.10.10.2@28953#-1244857759#-163453988#1407450538742337 7
003 10.10.10.1@11865 V4_0_0 1493971139224/10.10.10.1@11865#-1244857759#-163453988#1407450860148405 6
004 10.10.10.3@23180 V4_0_0 1493971139224/10.10.10.3@23180#-1244857759#-163453988#1407440078870050 8

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

#Message ID                         #QID    #Offset
707C8CC435FE3FD00E77180D7FCB0B24    0       1
```

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```
$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/msgbodys/707C8CC435FE3FD00E77180D7FCB0B24
```

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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。

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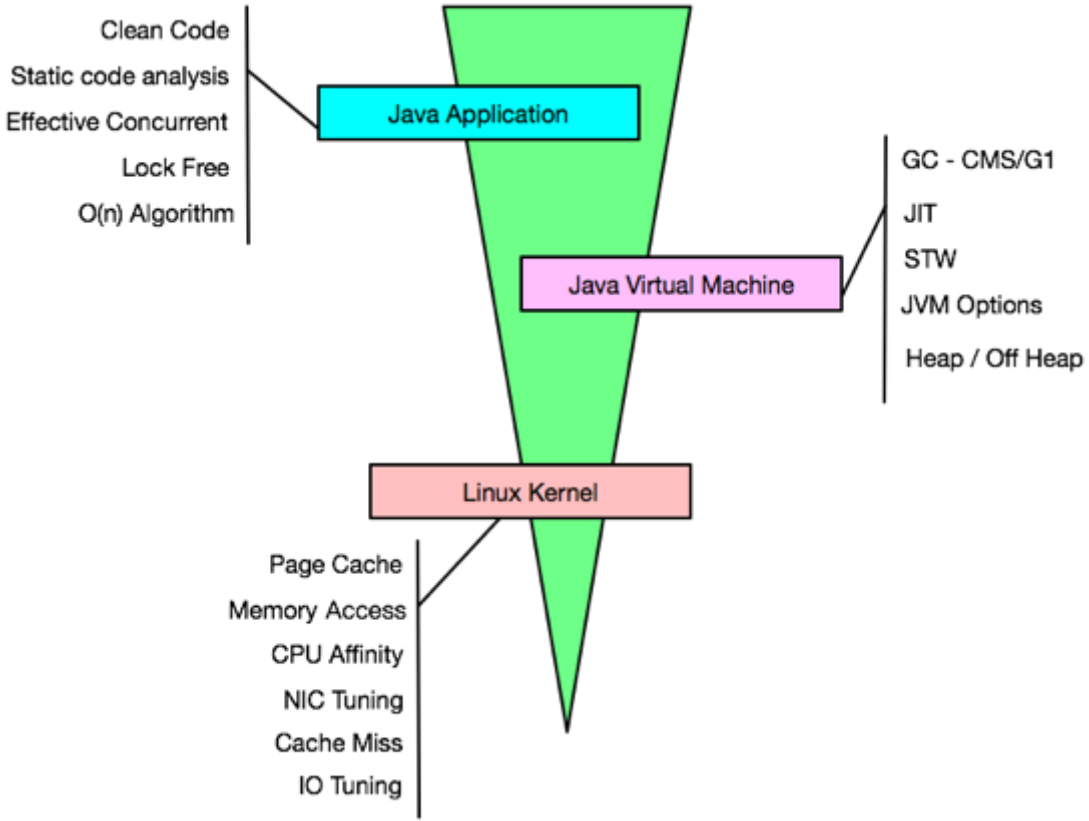

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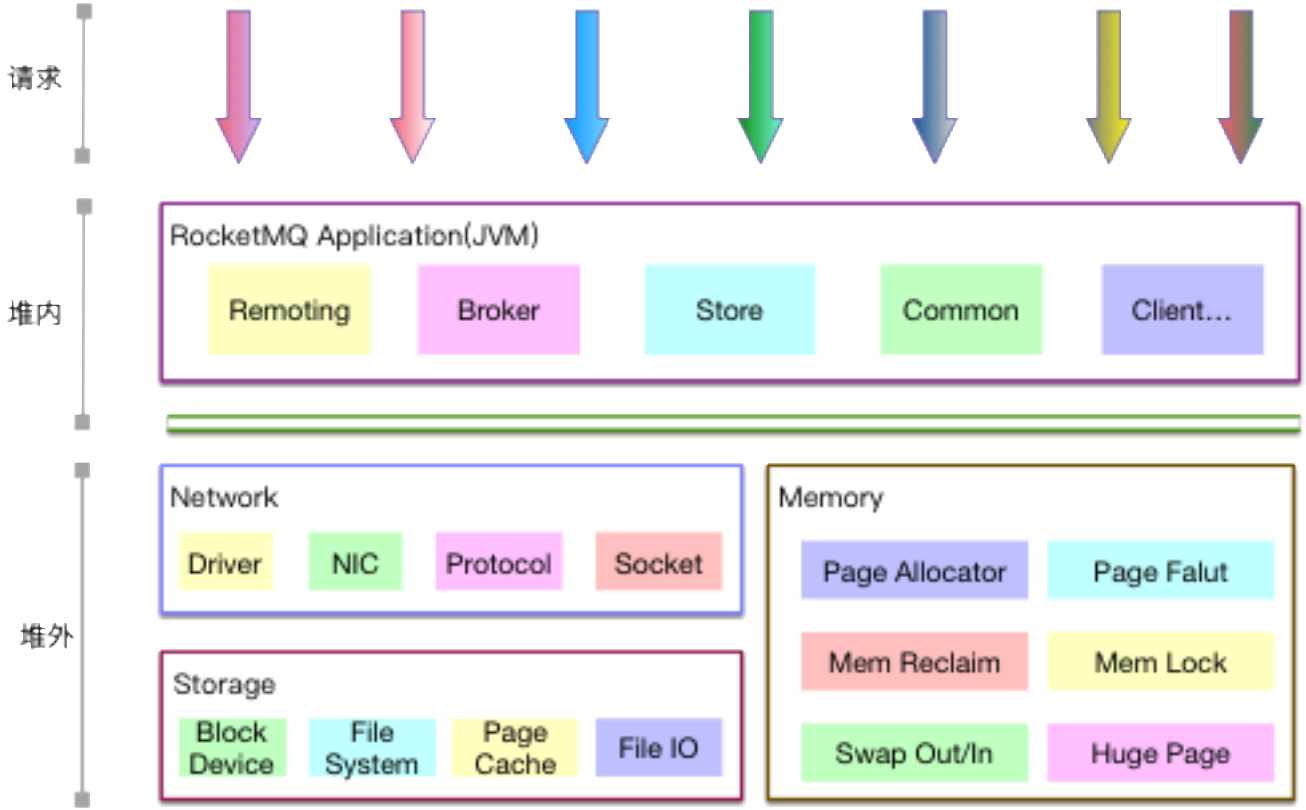

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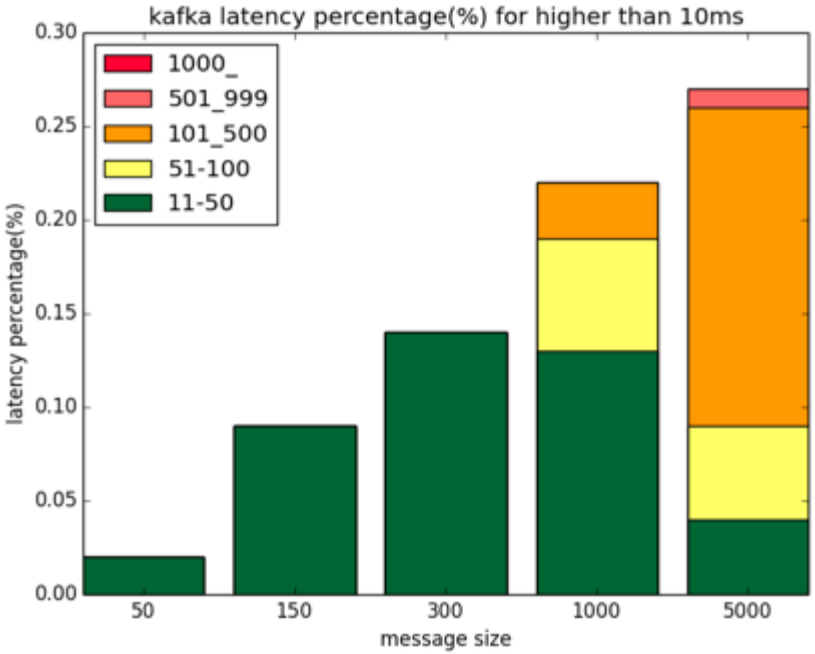

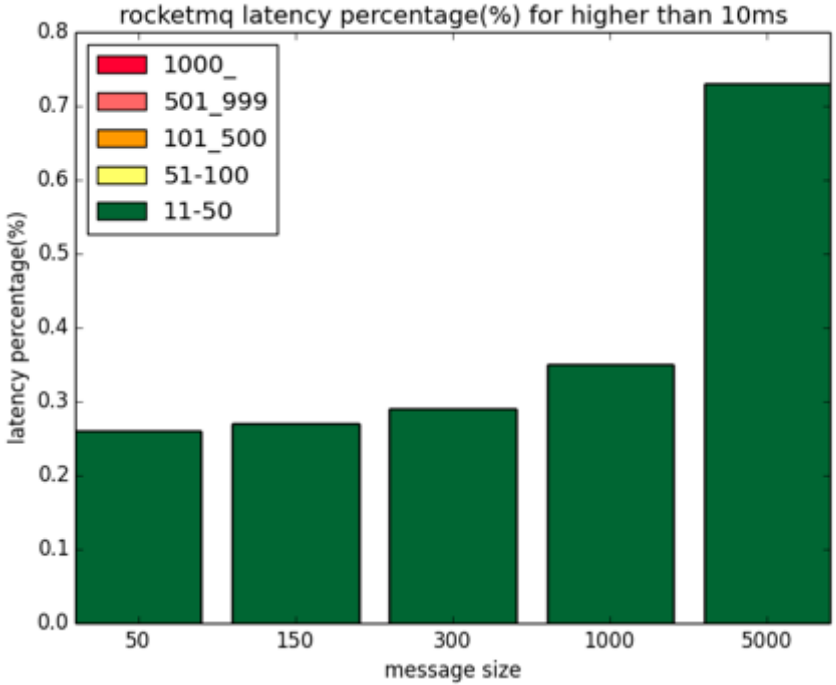

RocketMQ vs. Kafka

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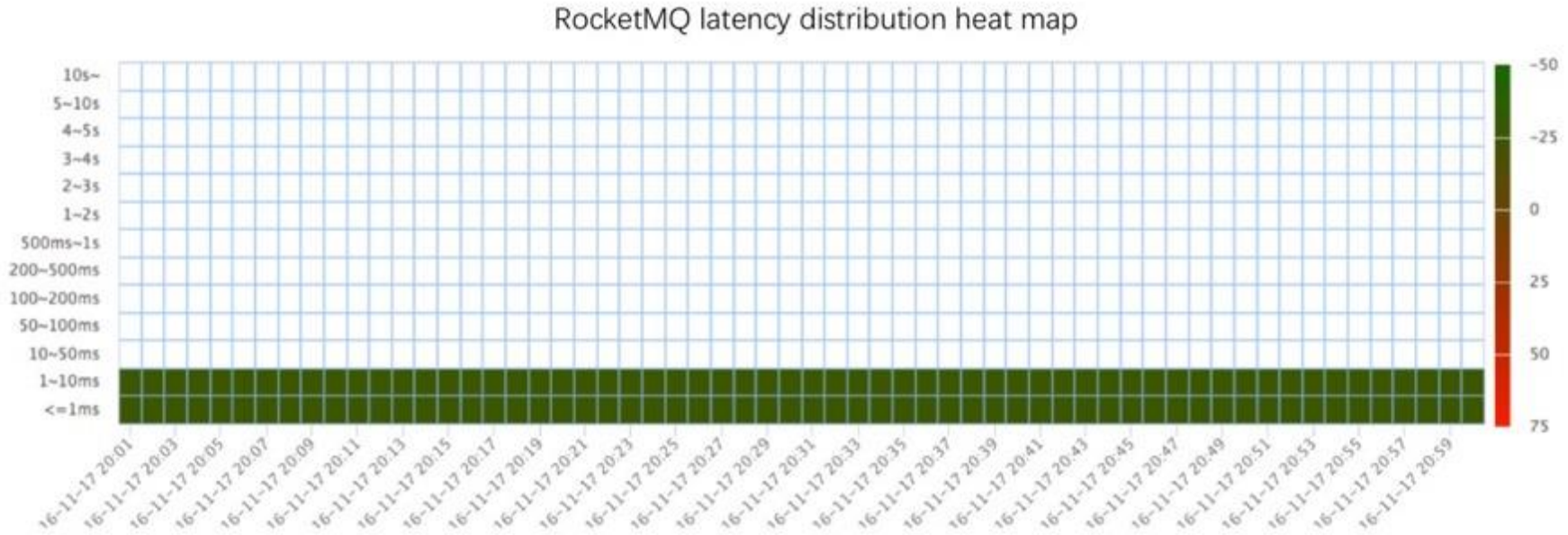

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04

RocketMQ 4.X

咬定青山不放松，立根原在破岩中

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E-Commerce

IoT

High Concurrency
High Reliability

Massive Online Devices
High Throughput

Finance

BigData

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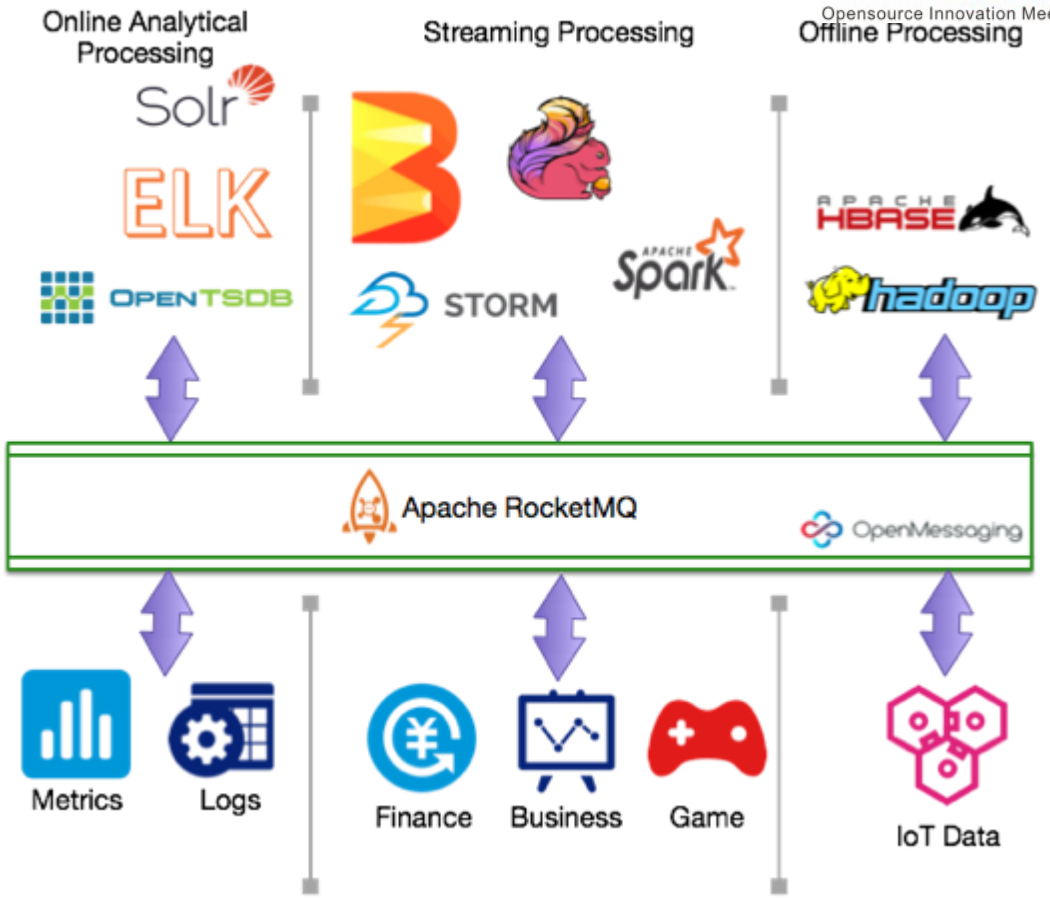

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OpenMessaging

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.

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Apache RocketMQ Community

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

Von Gosling <vongosling@apache.org> 2月22日 (6天前)

发送至 private

Hi,

We are glad to see the new committer vote since entering apache incubator podling. This vote is for shroman(Apache id).

Shroman is very active in RocketMQ community, has opened 16 PRs[1] so far, 9 PRs have been merged.

Shroman also have some contributions in rocketmq-flume-ng(rocketmq community project[2])

On the other hand, shroman will integrate Apache RocketMQ with Apache Ignite(shroman is a committer of Ignite[3]) in Apache Ignite 2.0[4][5]. IMO, it's a good start for embracing other apache projects.

Voting ends one week from today. Voting guidelines is here[6].

PS.

We are always very happy to have contributions, whether for trivial cleanups or big new features. We want to have high quality, well documented codes for each programming language, as well as the surrounding ecosystem of integration tools that people use with RocketMQ.

Nor is code the only way to contribute to the project. We strongly value documentation, integration with other project, and gladly accept improvements for these aspects.

Thanks,
The Apache RocketMQ Team

[1] https://github.com/apache/incubator-rocketmq/pulls?utf8=%E2%9C%93&q=is%3Apr%20author%3Ashroman%20
[2] https://github.com/rocketmq/rocketmq-flume-ng/commits/master?author=shroman
[3] https://ignite.apache.org/community/resources.html#people
[4] https://issues.apache.org/jira/browse/ROCKETMQ-41
[5] https://issues.apache.org/jira/browse/IGNITE-4539
[6] https://community.apache.org/newcommitter.html

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谢谢

THANKS!

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5. 捐赠Apache背后那些鲜为人知的故事. 中间件博客节选

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