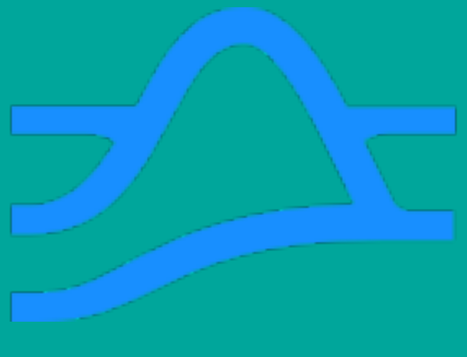
Apache Pulsar 上手实战

魏彬 / rockybean

2021年



PULSAR

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个人简介

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Elastic Certified Engineer & Analyst

阿里云 MVP

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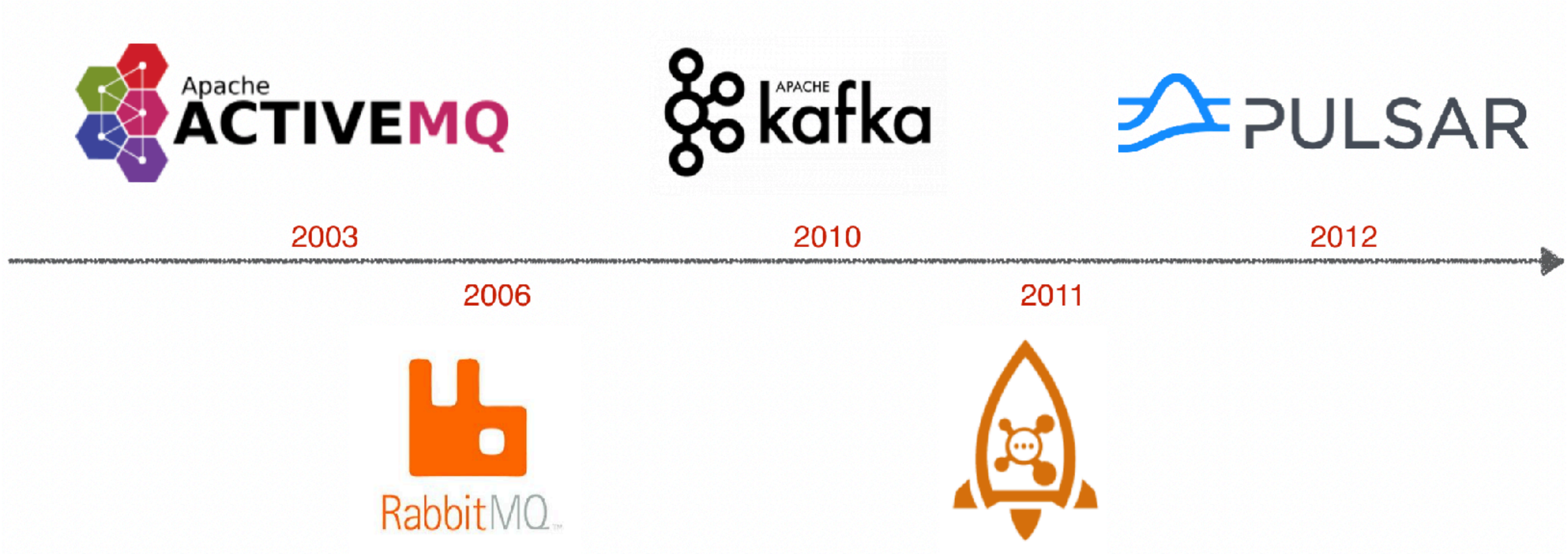
Apache Pulsar 简介

Apache Pulsar

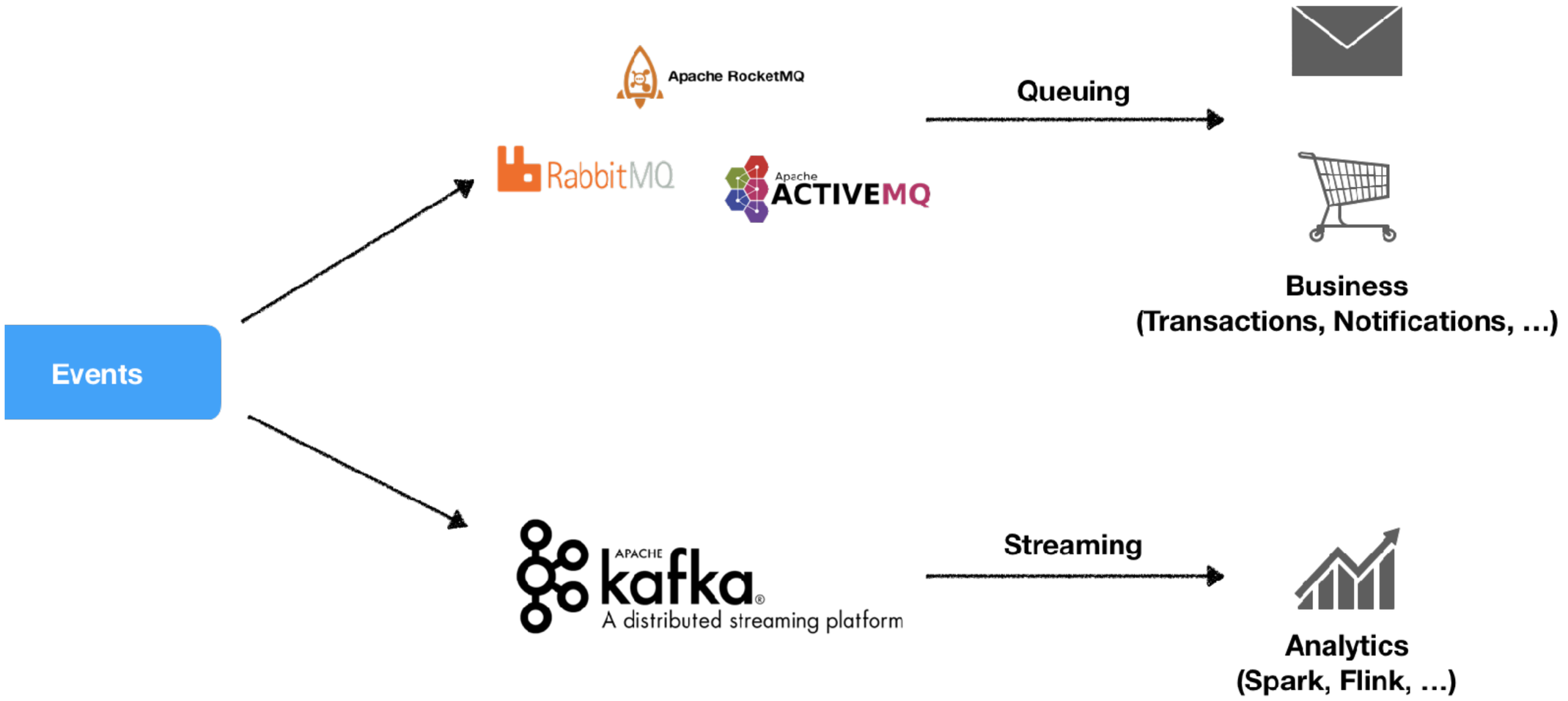
新一代 云原生 分布式 消息 流 平台

Cloud-Native Messaging and Event-Streaming Platform

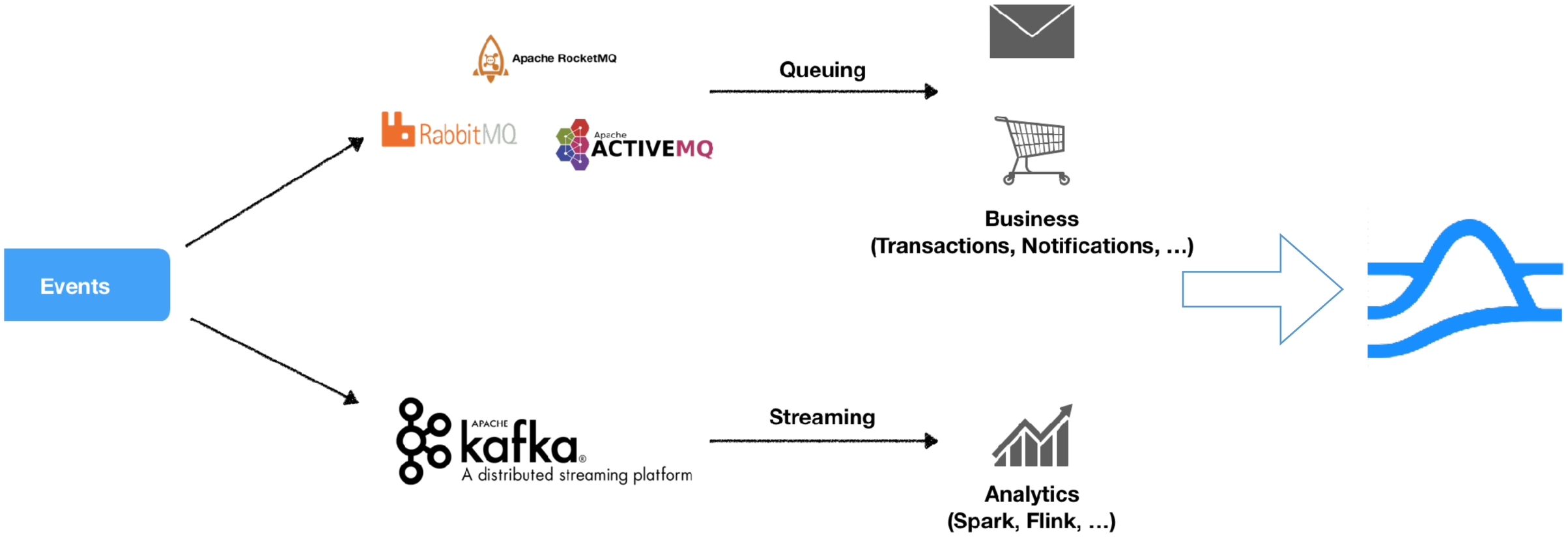
Apache Pulsar



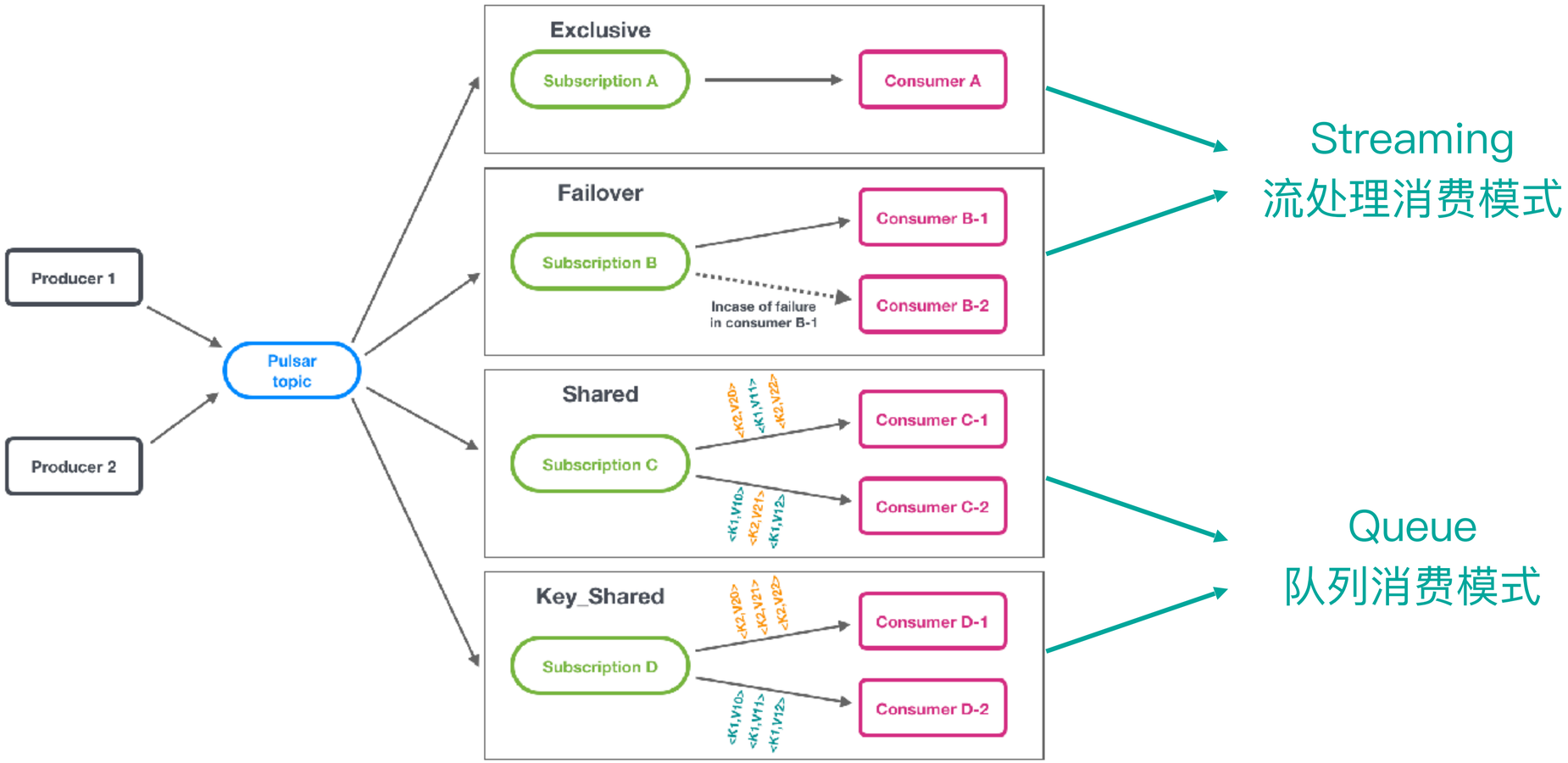
Apache Pulsar



Apache Pulsar



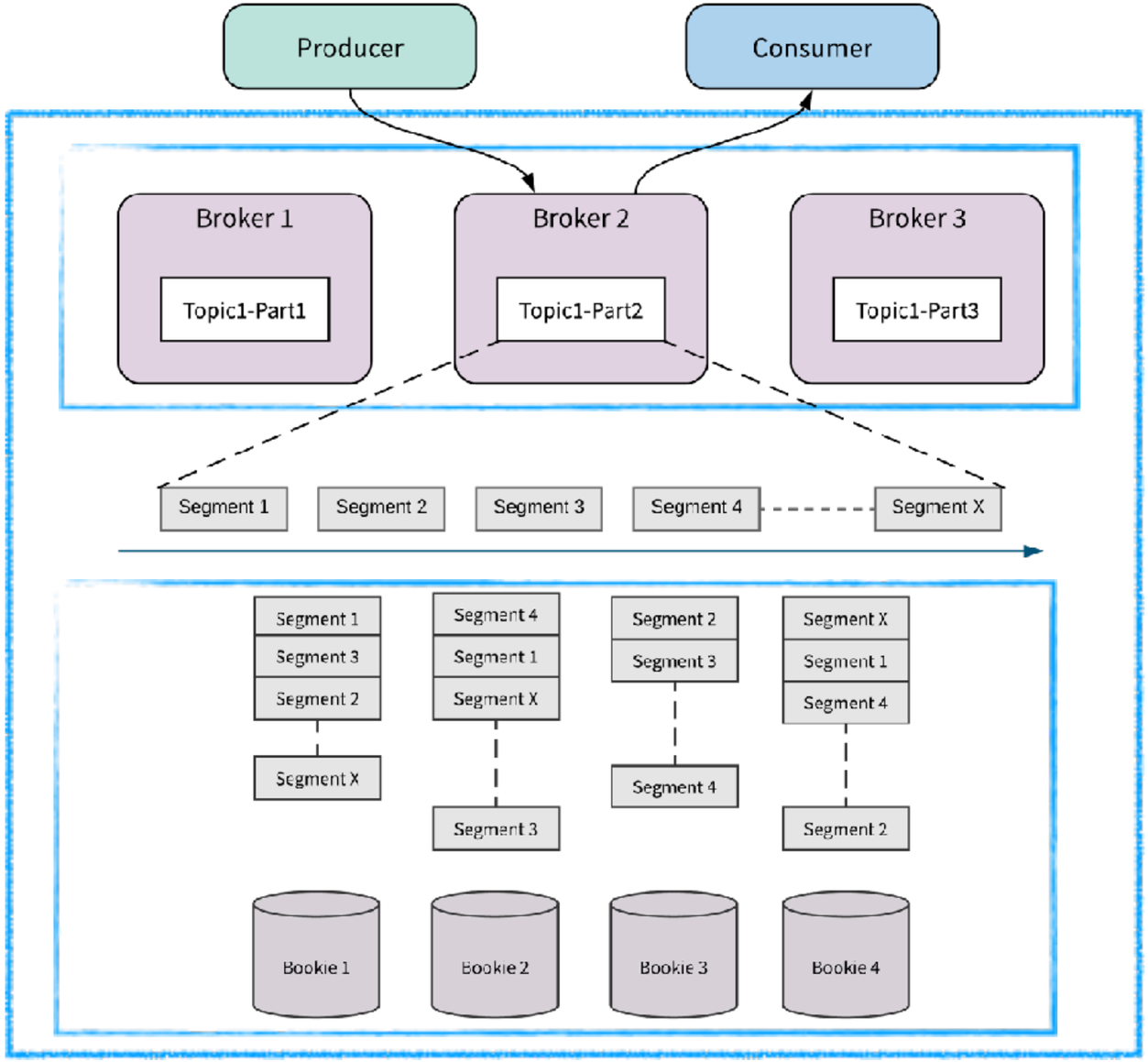
Apache Pulsar



Apache Pulsar 要解决的问题

- 企业需求和数据规模
  - 多租户 - 百万Topics - 低延时 - 持久化 - 跨地域复制
- 解除存储计算耦合
  - 运维痛点：替换机器、服务扩容、数据 rebalance
- 减少文件系统依赖
  - 性能难保障： 持久化（fsync）、一致性（ack: all）、多Topic
  - IO不隔离：消费者读Backlog的时候会影响其他生产者和消费者

Apache Pulsar 架构



- 存储和计算分离
- 节点对等
- 独立扩展
- 灵活扩容
- 快速容错

Apache Pulsar 特性

Durability
Data replicated and synced to disk

Ordering
Guaranteed ordering

Delivery Guarantees
At least once, at most once and effectively once

High throughput
Can reach 1.8 M messages/s in a single partition

Low Latency
Low publish latency of 5ms at 99pct

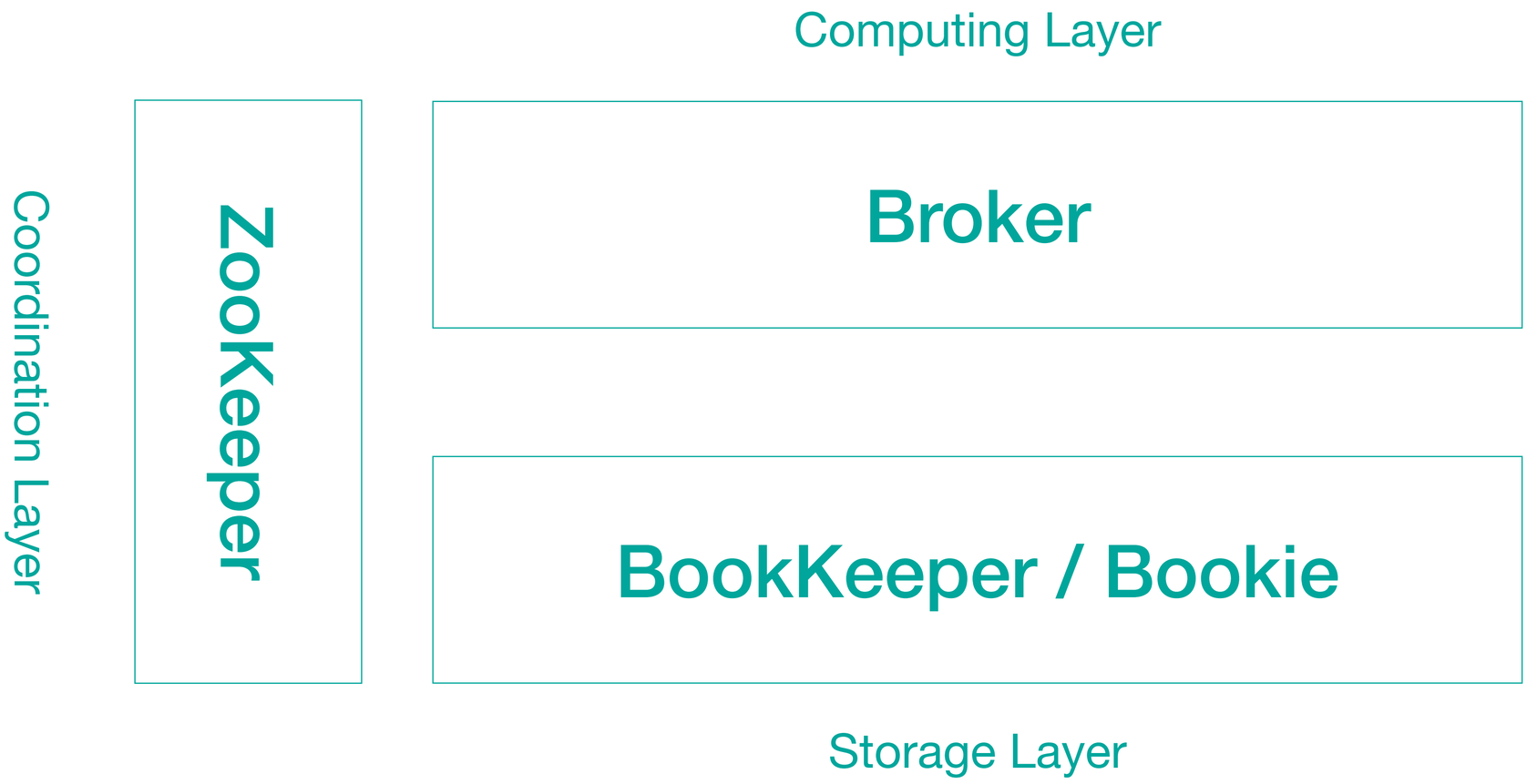
Unified messaging model
Support both Streaming and Queuing

Multi-tenancy
A single cluster can support many tenants and use cases

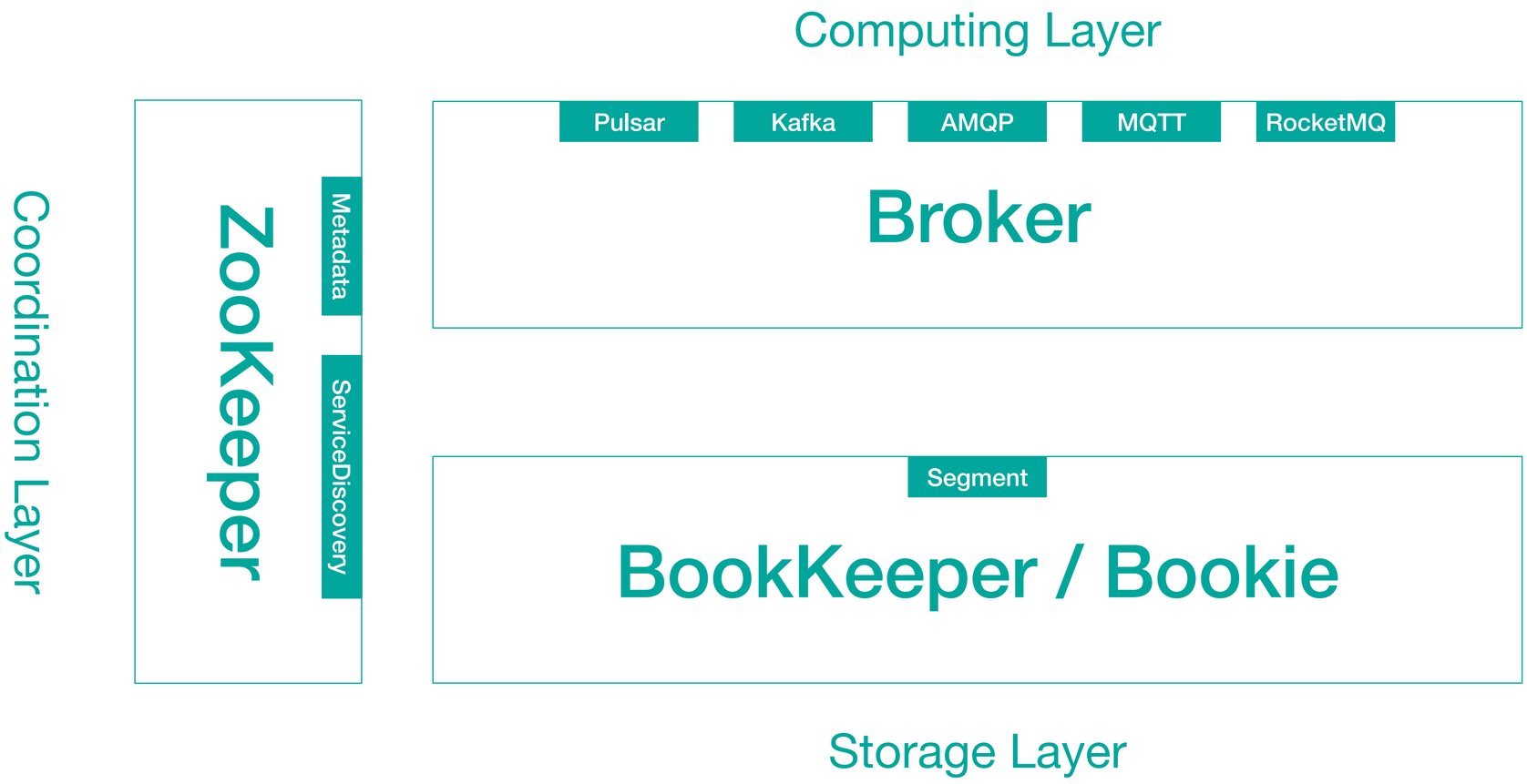
Geo-replication
Out of box support for geographically distributed applications

Highly scalable & available
Can support millions of topics

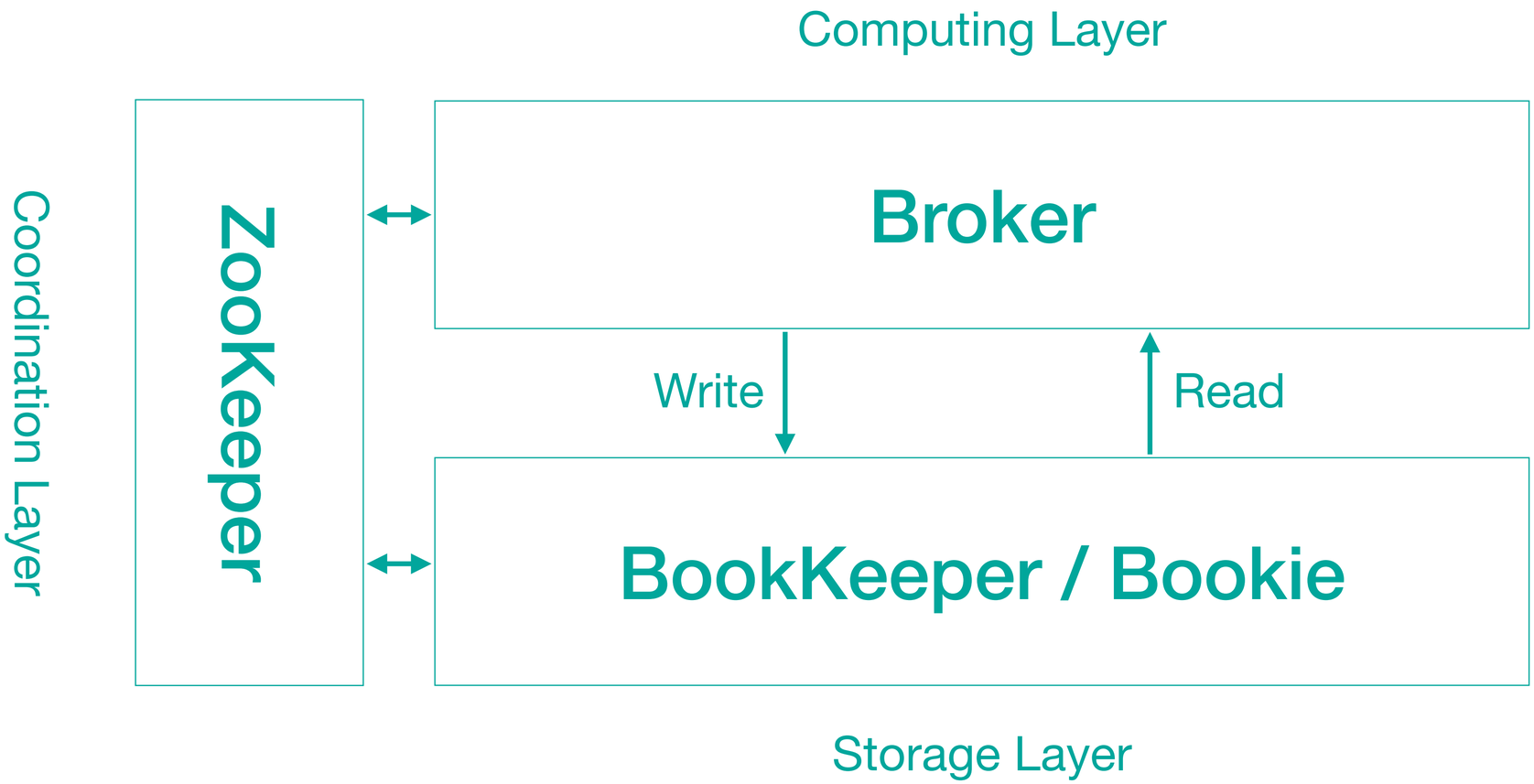
Apache Pulsar 核心组件



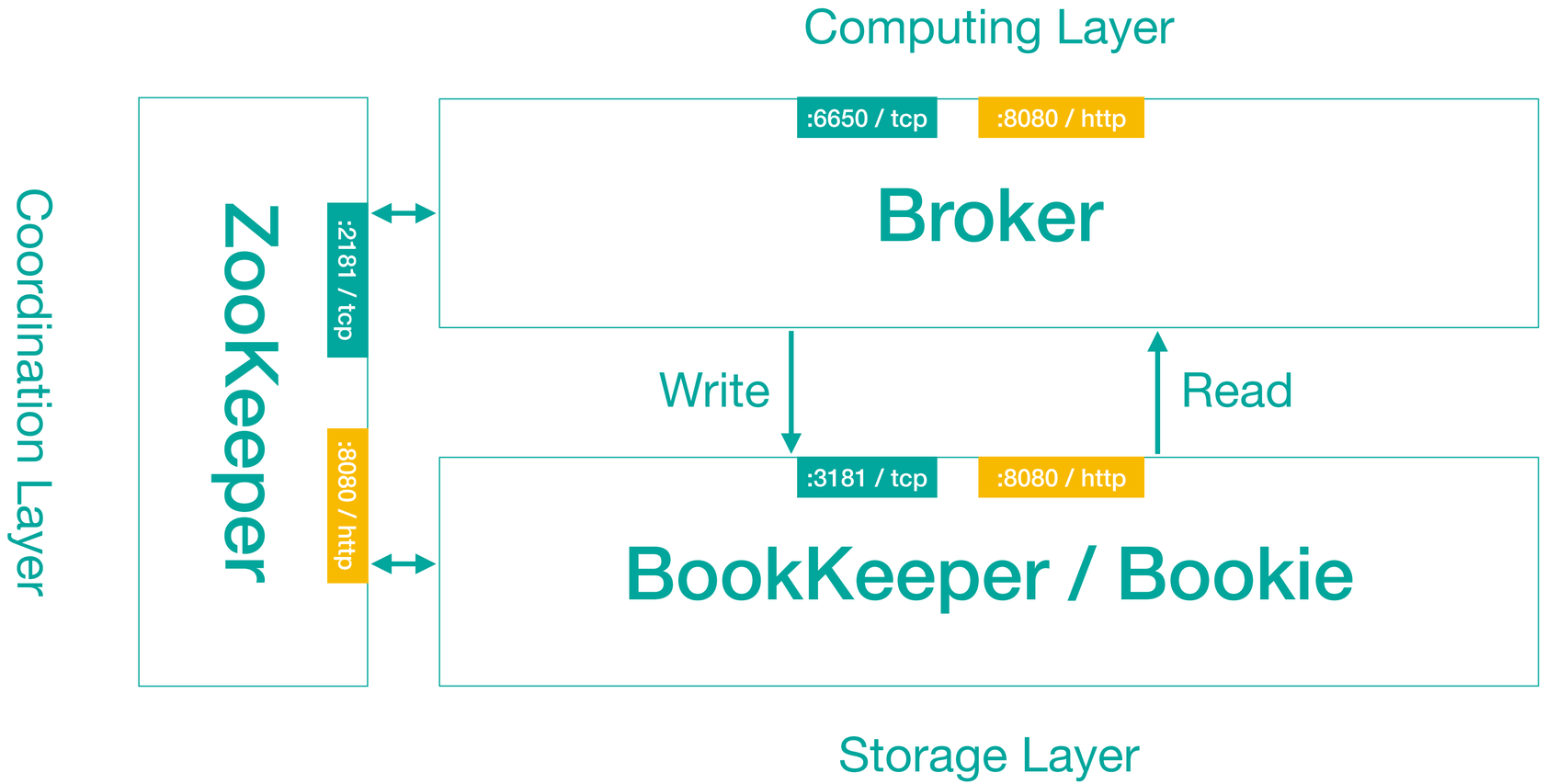
Apache Pulsar 核心组件



Apache Pulsar 组件的网络流向



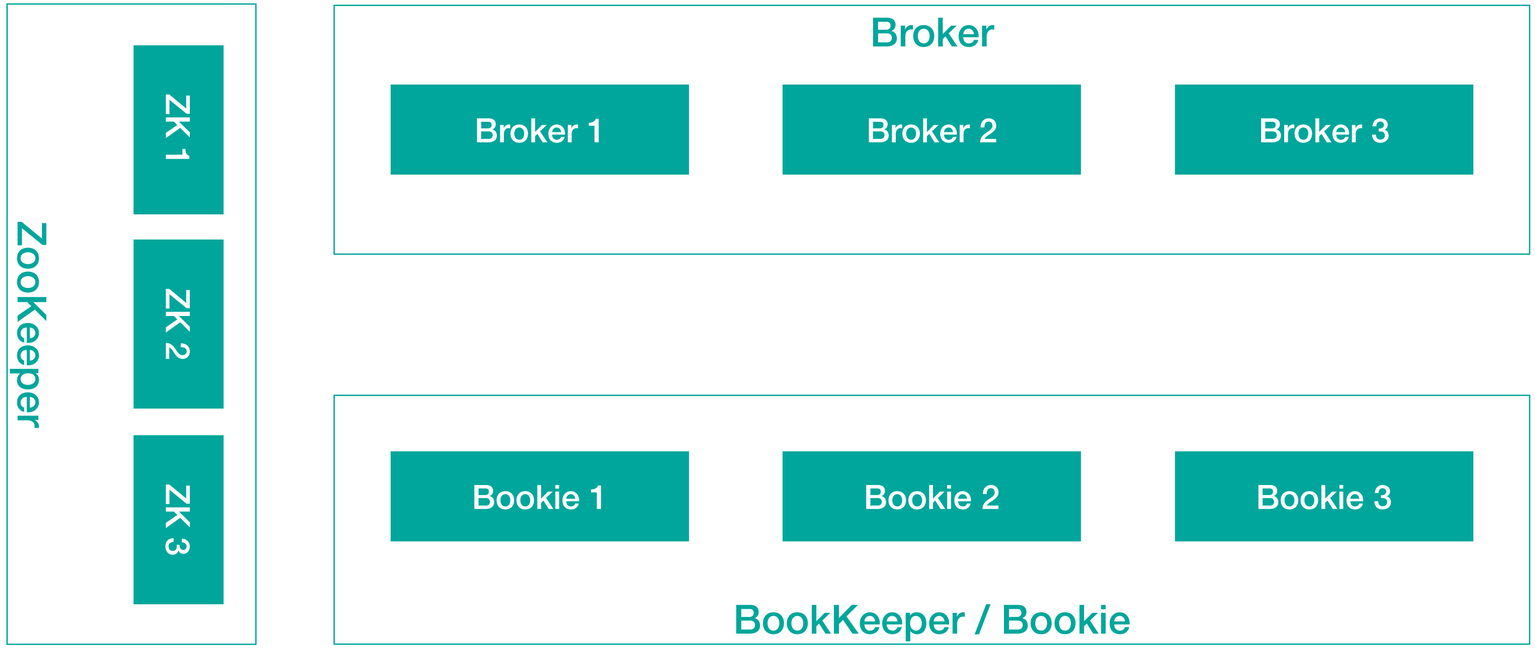
Apache Pulsar 组件的端口



tcp 端口主要用于组件间内部通信以及 client 访问

http 端口主要用于提供 rest api 和 暴露 prometheus 的 metrics

Apache Pulsar 组件 分布式



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上手

下载地址

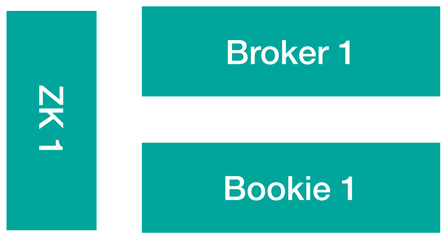
- https://pulsar.apache.org/en/download/
- Mirror
  - https://mirrors.tuna.tsinghua.edu.cn/apache/pulsar/

Standalone

Standalone 本地开发推荐模式

bin/pulsar standalone

bin/pulsar-daemon standalone



- https://pulsar.apache.org/docs/en/standalone/

Demo

常用命令

```
bin/pulsar-admin clusters list
bin/pulsar-admin brokers list test
bin/pulsar-admin topics list public/default
```

```
bin/pulsar-client produce my-topic --messages “hello-pulsar”
bin/pulsar-client consume my-topic -s "first-subscription"
```

- https://pulsar.apache.org/docs/en/reference-cli-tools/
- https://pulsar.apache.org/docs/en/admin-api-overview/

Cluster

Cluster

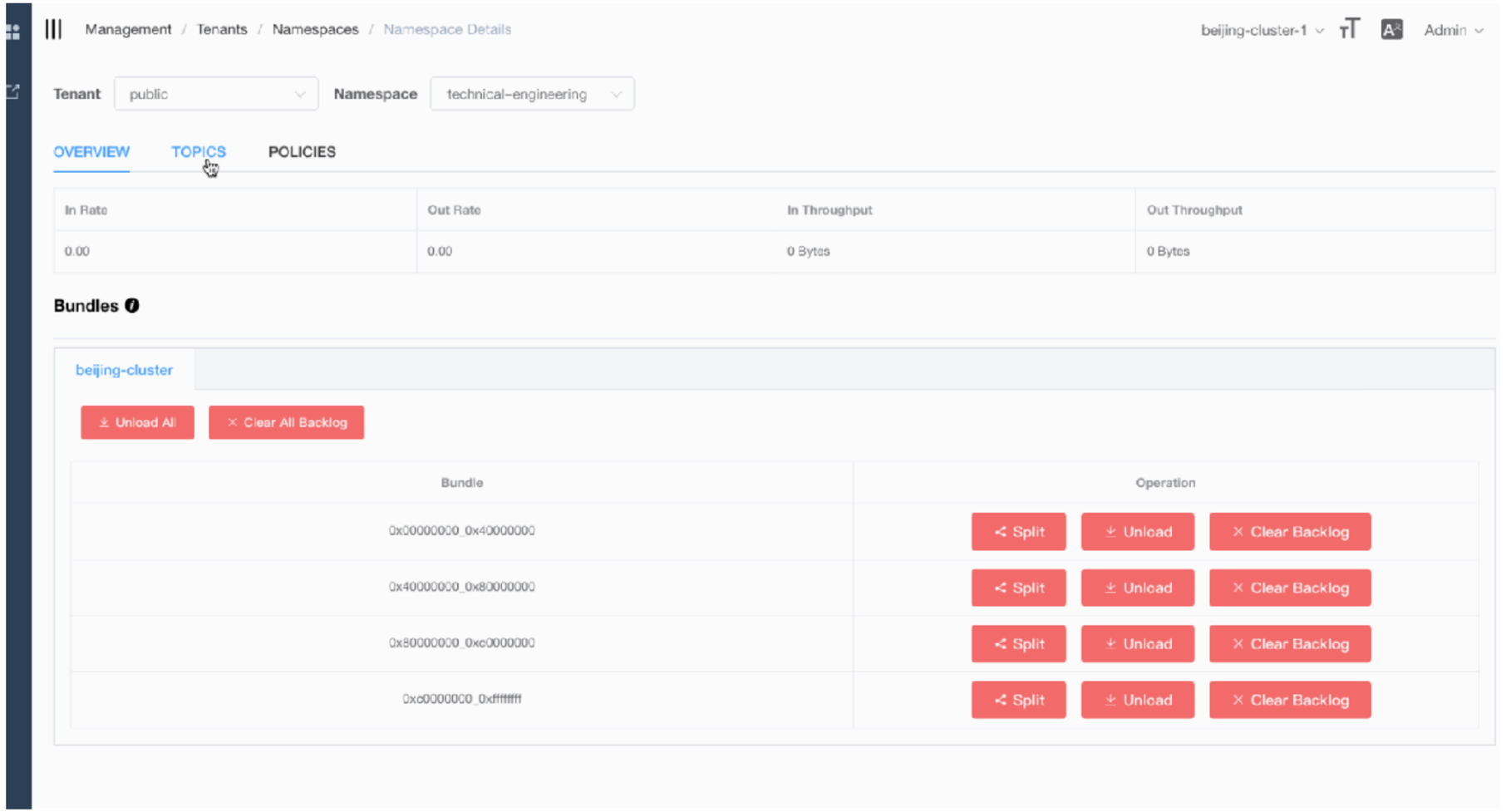
- 推荐使用 docker 运行

- https://pulsar.apache.org/docs/en/deploy-bare-metal/
- https://github.com/apache/pulsar/tree/master/docker-compose/kitchen-sink

03

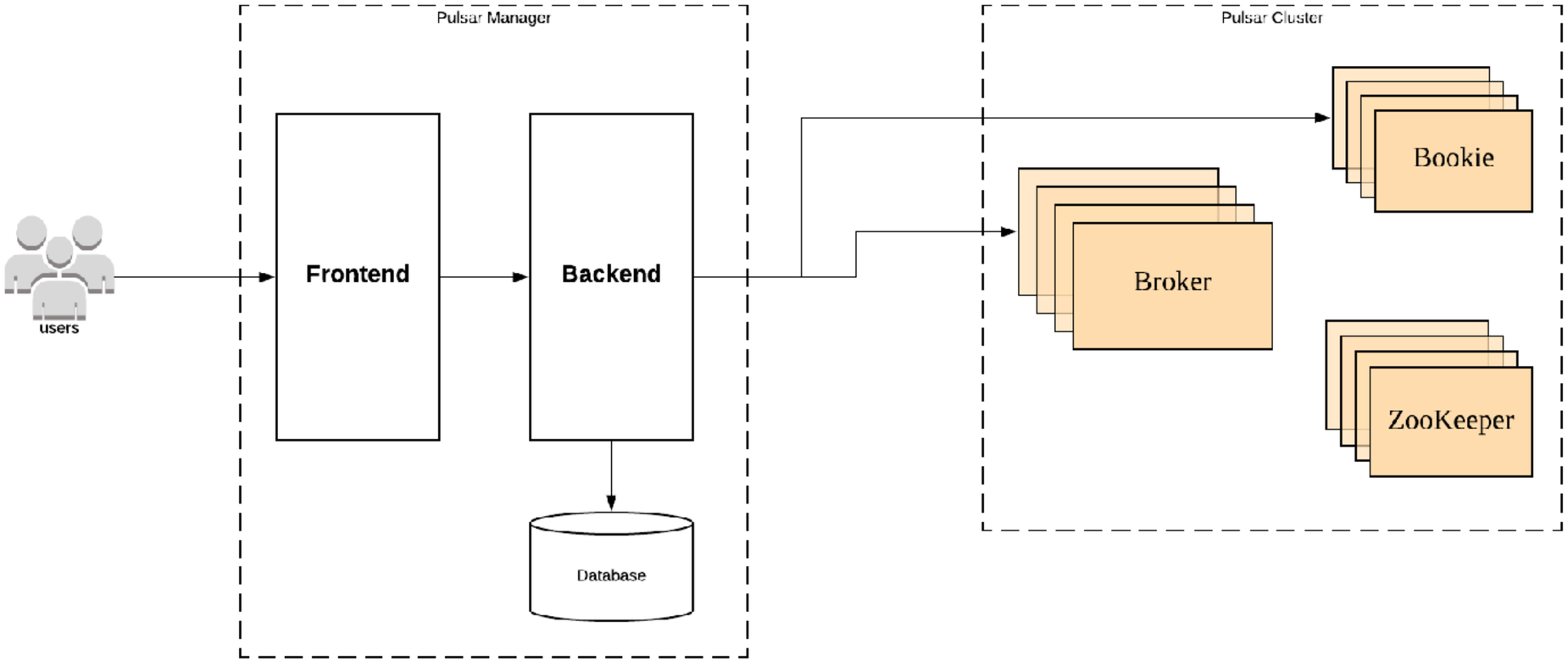
监控运维工具

运维工具 Pulsar Manager



- https://github.com/apache/pulsar-manager

运维工具 Pulsar Manager



- https://github.com/apache/pulsar-manager

运维工具 Pulsar Manager

```
tar zxvf apache-pulsar-manager-0.2.0-bin.tar.gz
cd pulsar-manager
tar xvf pulsar-manager.tar
mv dist pulsar-manager/ui
cd pulsar-manager
bin/pulsar-manager
```

application.properties

- **bookie.enable=true**
- **pulsar.peek.message=true**

bkvm.conf

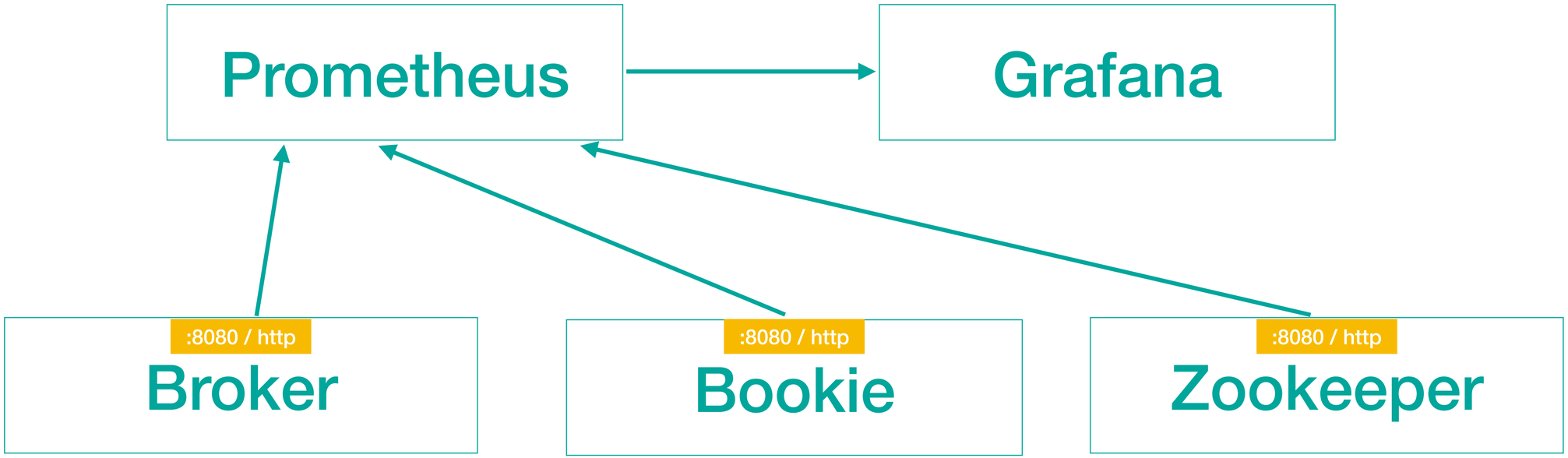
- **bookie.enable=true**

运维工具 Pulsar Manager

```
CSRF_TOKEN=$(curl http://localhost:7750/pulsar-manager/csrf-token)
curl \
   -H 'X-XSRF-TOKEN: $CSRF_TOKEN' \
   -H 'Cookie: XSRF-TOKEN=$CSRF_TOKEN;' \
   -H "Content-Type: application/json" \
   -X PUT http://localhost:7750/pulsar-manager/users/superuser \
   -d '{"name": "admin", "password": "apachepulsar", "description":
"test", "email": "username@test.org"}'
```

- http://localhost:7750/ui/index.html
  - admin/apachepulsar
- http://localhost:7750/bkvm/
  - admin/admin

监控工具 Prometheus&Grafana



- https://github.com/streamnative/apache-pulsar-grafana-dashboard/

Prometheus Config

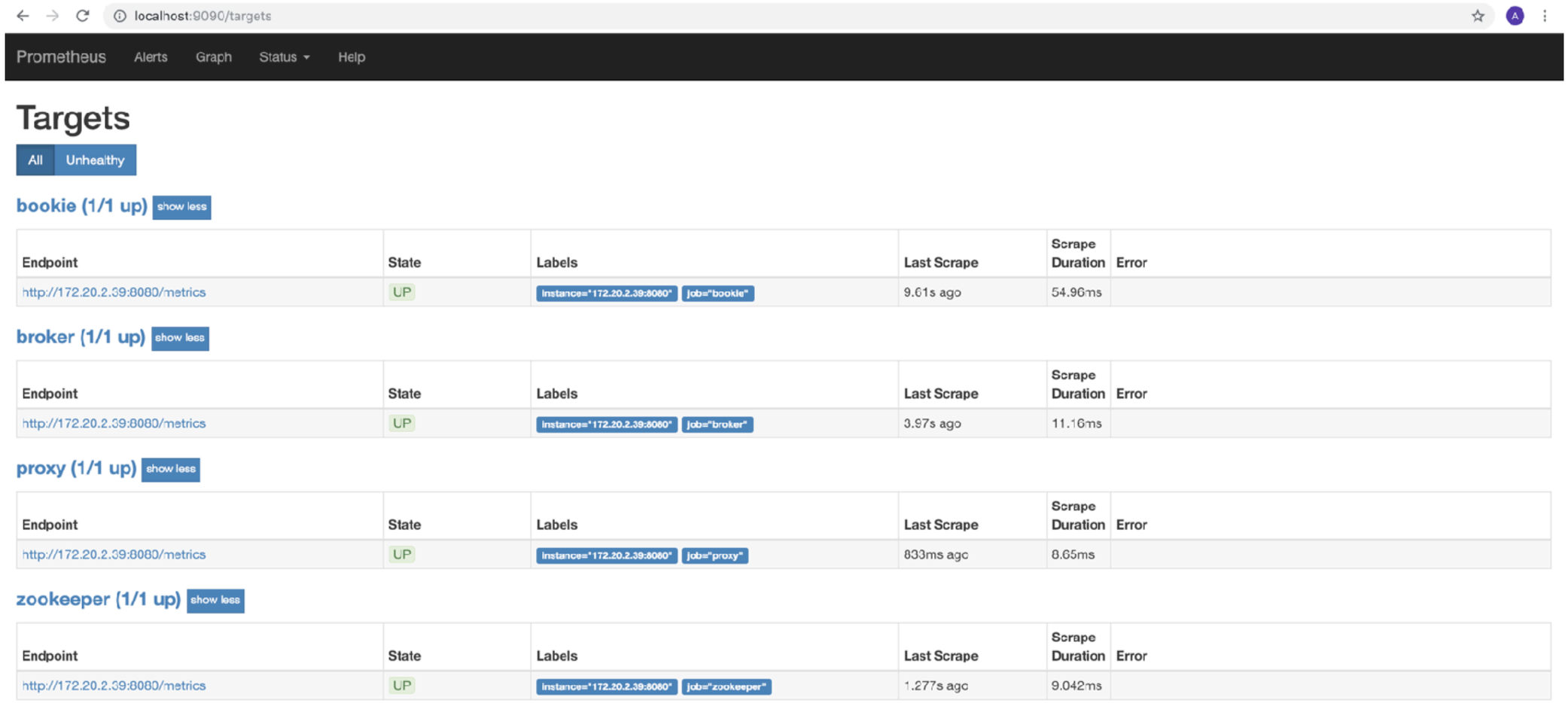
```
scrape_configs:
  - job_name: "proxy"
    honor_labels: true # don't overwrite job &
instance labels
    static_configs:
    - targets:
      - '127.0.0.1:8080'

  - job_name: "broker"
    honor_labels: true # don't overwrite job &
instance labels
    static_configs:
    - targets:
      - '127.0.0.1:8080'

  - job_name: "bookie"
    honor_labels: true # don't overwrite job &
instance labels
    static_configs:
    - targets:
      - '127.0.0.1:8080'

  - job_name: "zookeeper"
    honor_labels: true
    static_configs:
    - targets:
      - '127.0.0.1:8080'
```

监控工具 Prometheus&Grafana



监控工具 Prometheus&Grafana

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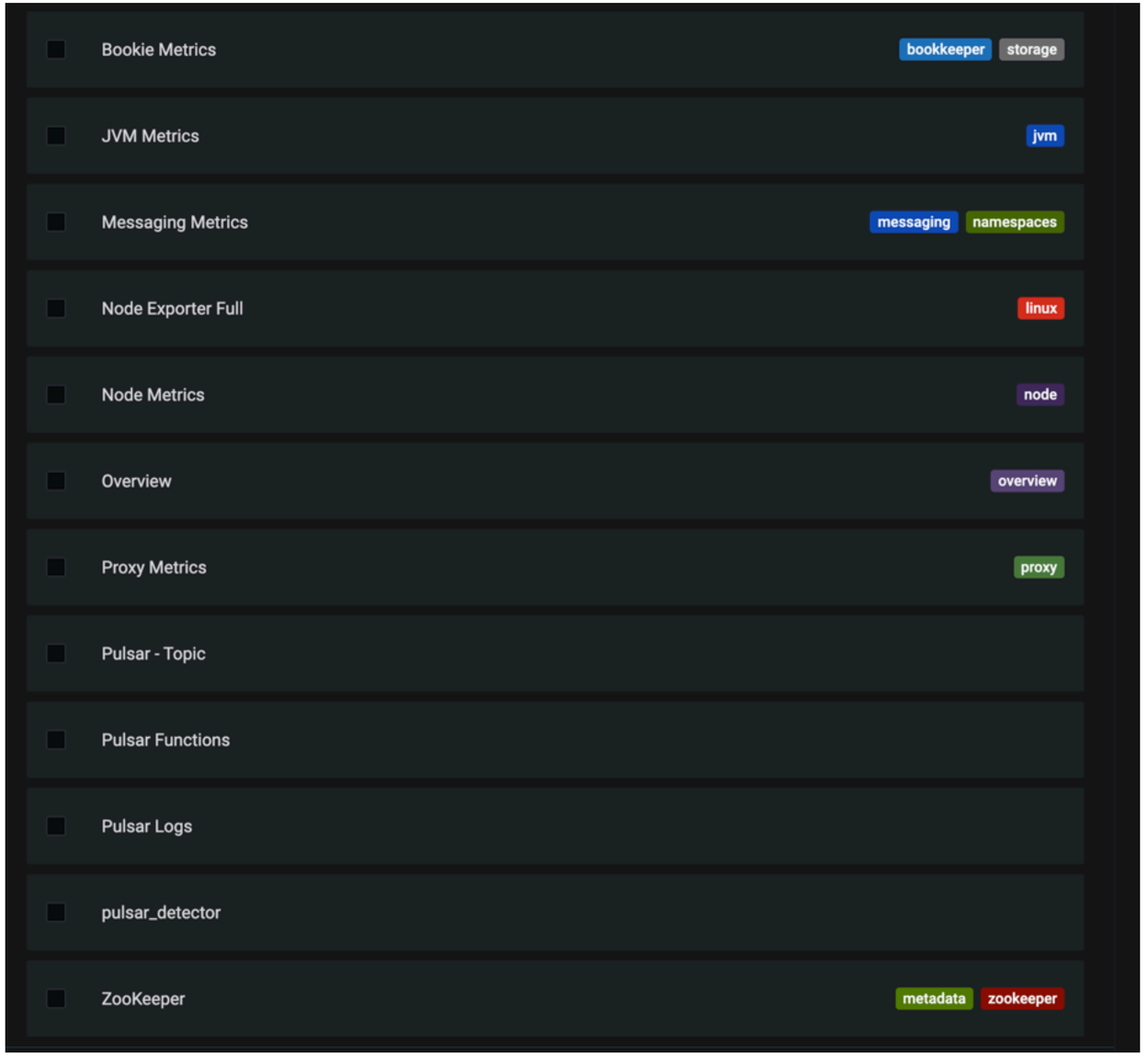


监控工具 Prometheus&Grafana

```
./scripts/generate_dashboards.sh 127.0.0.1:9090 pulsar 127.0.0.1:9090
127.0.0.1:9090 loki_source
```

```
ls ./target
```

- https://github.com/streamnative/apache-pulsar-grafana-dashboard/

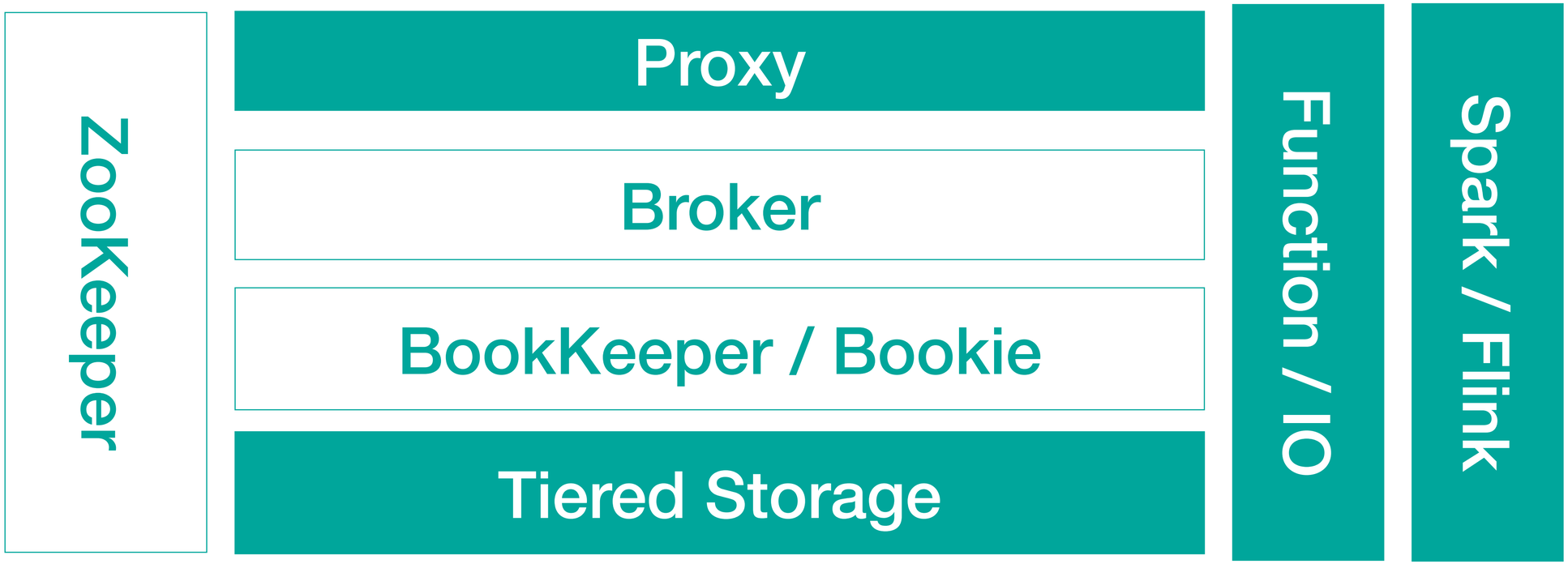
Perf 压力测试

```
bin/pulsar-perf produce -r 100 -n 2 -s 1024 test-perf
```

```
bin/pulsar-perf consume test-perf
```

Demo

Apache Pulsar 组件



Apache Pulsar 入门资料

- TGIP CN
  - https://github.com/streamnative/tgip-cn
- Bilibili
  - https://space.bilibili.com/391380821
- 微信公众号 Apache Pulsar - 从入门到实践合集
  - https://mp.weixin.qq.com/s/l5KuwGw30-C9bpCgK08vDQ
- 官方文档
  - https://pulsar.apache.org/docs
  - https://bookkeeper.apache.org/docs/latest/
- 样例
  - https://github.com/streamnative/examples
  - https://github.com/streamnative/psat_exercise_code

Q&A