基于Flink的流计算平台

梁永锋（天姥）

目录

01

流计算开发运维痛点

开发　　调优　　运维

01 流计算开发运维痛点

任务需要底层API开发

- 环境配置复杂
- 理解引擎接口逻辑
- Java、Scala等偏底层语言
- 拷包运行任务，一致性

01 流计算开发运维痛点

任务逻辑调试

- 造数据
- UT、IT
- 远程debug
- 防止生产环境污染
- 结果数据对比

01 流计算开发运维痛点

上下游数据预览

- 多种存储客户端
- 可视化方式各有不同
- 如何关联排查问题
- 数据安全

01 流计算开发运维痛点

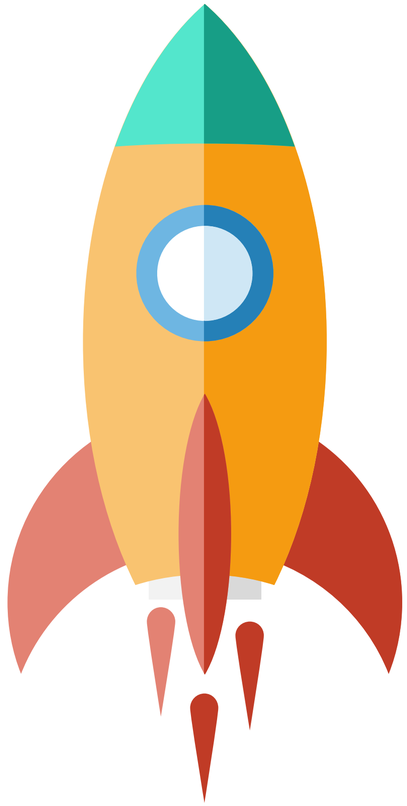
任务指标曲线

- 任务大盘
- 物理参数
- 逻辑指标
- 任务健康度
- failover
- checkpoint

01 流计算开发运维痛点

性能调优

- 上下游批量读写
- 资源配置
- 反压点
- 数据倾斜



01 流计算开发运维痛点

监控报警

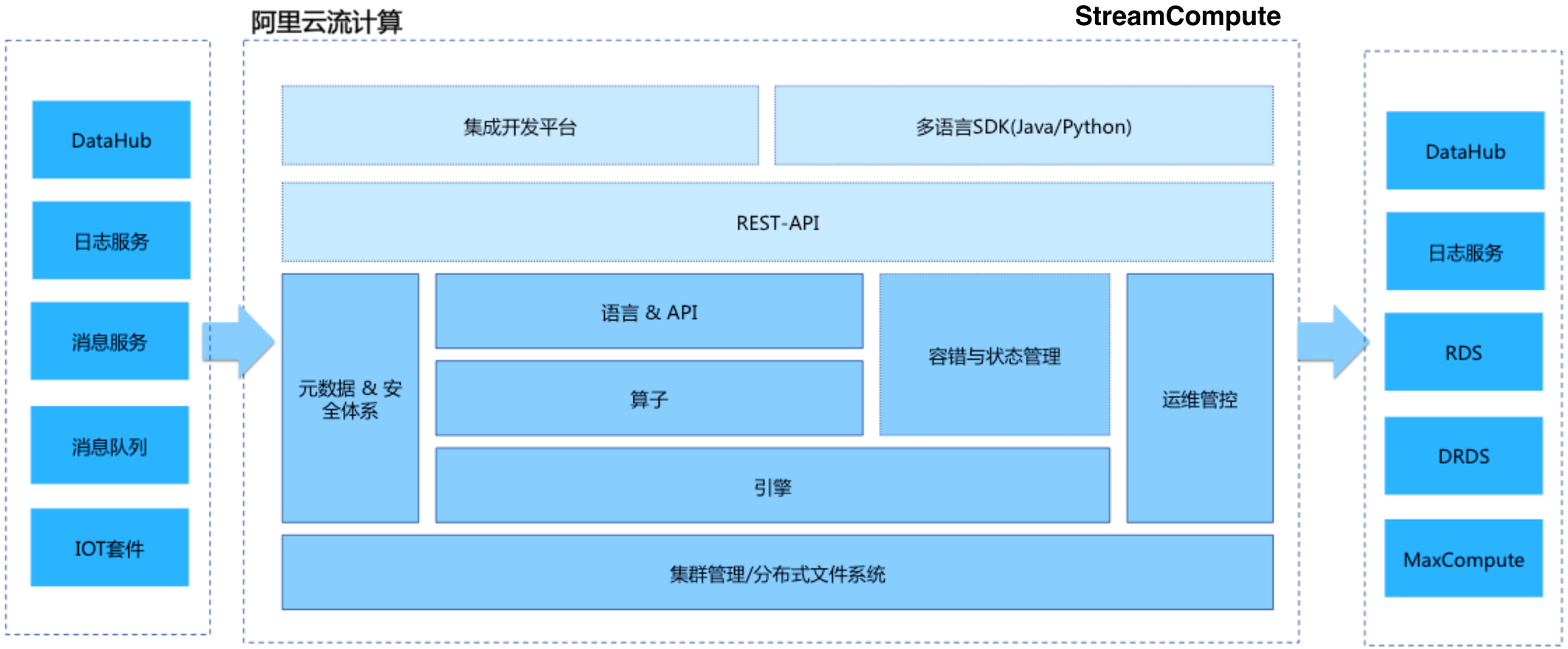
- 延时，没数据
- 数据波动
- failover
- 。。。

02

基于Flink的流计算平台

StreamCompute　AliCloud　一站式平台

02 基于Flink的流计算平台

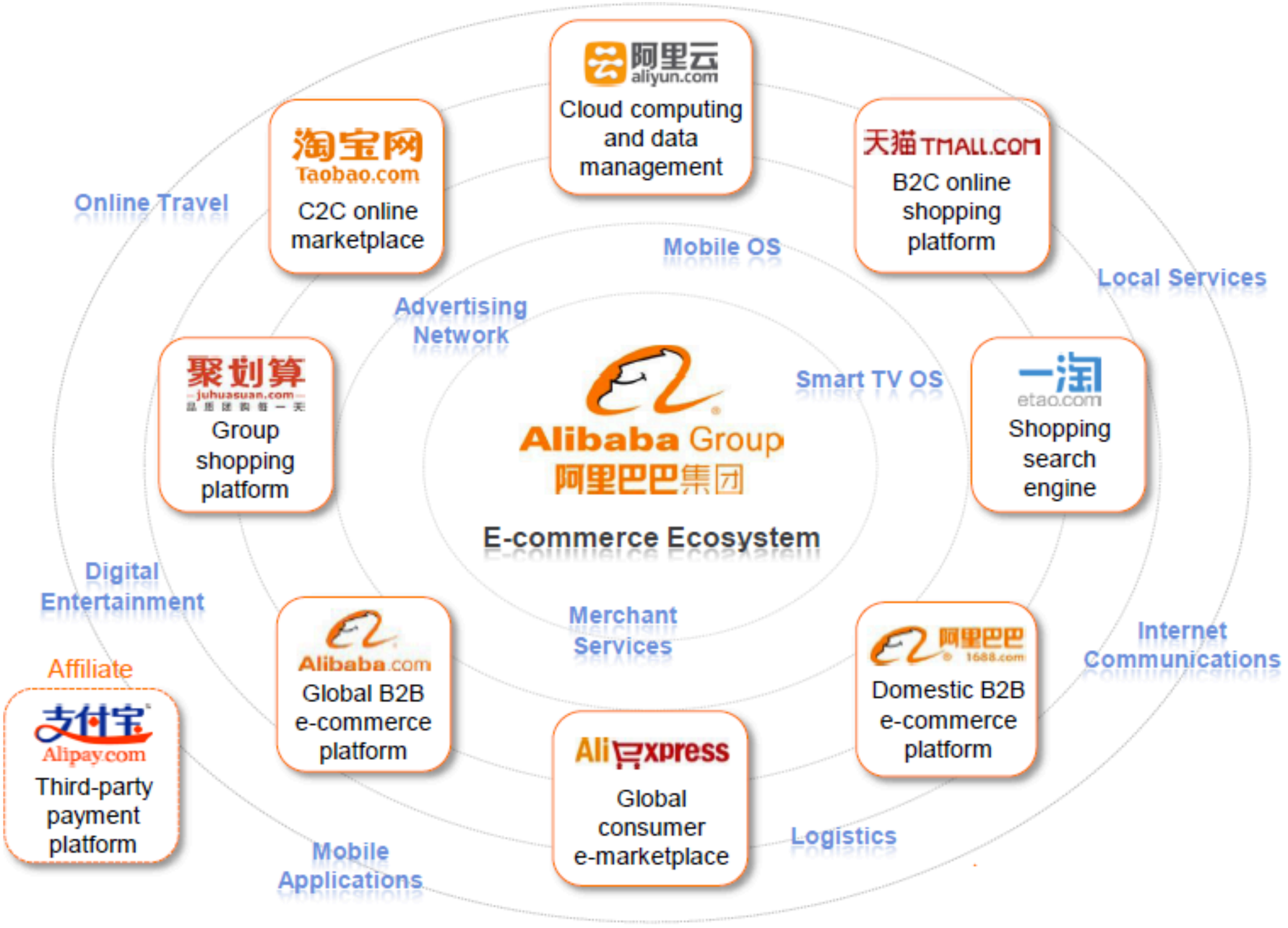


02

基于Flink的流计算平台

双11实时大屏

- 交易峰值：30+ 万笔/s
- 支付峰值：20+ 万笔/s
- 日志峰值：　数亿条/s


Alibaba Group
阿里巴巴集团
E-commerce Ecosystem
阿里云 aliyun.com
Cloud computing and data management
淘宝网 Taobao.com
C2C online marketplace
天猫 TMALL.COM
B2C online shopping platform
聚划算 juhuasuan.com
Group shopping platform
一淘 etao.com
Shopping search engine
Alibaba.com
Global B2B e-commerce platform
阿里巴巴 1688.com
Domestic B2B e-commerce platform
AliExpress
Global consumer e-marketplace
支付宝 Alipay.com
Third-party payment platform
Online Travel
Mobile OS
Local Services
Advertising Network
Smart TV OS
Digital Entertainment
Merchant Services
Internet Communications
Affiliate
Logistics
Mobile Applications

02 基于Flink的流计算平台

Apache Flink

+

Alibaba's Improvements

=

Alibaba Blink

Alibaba Blink

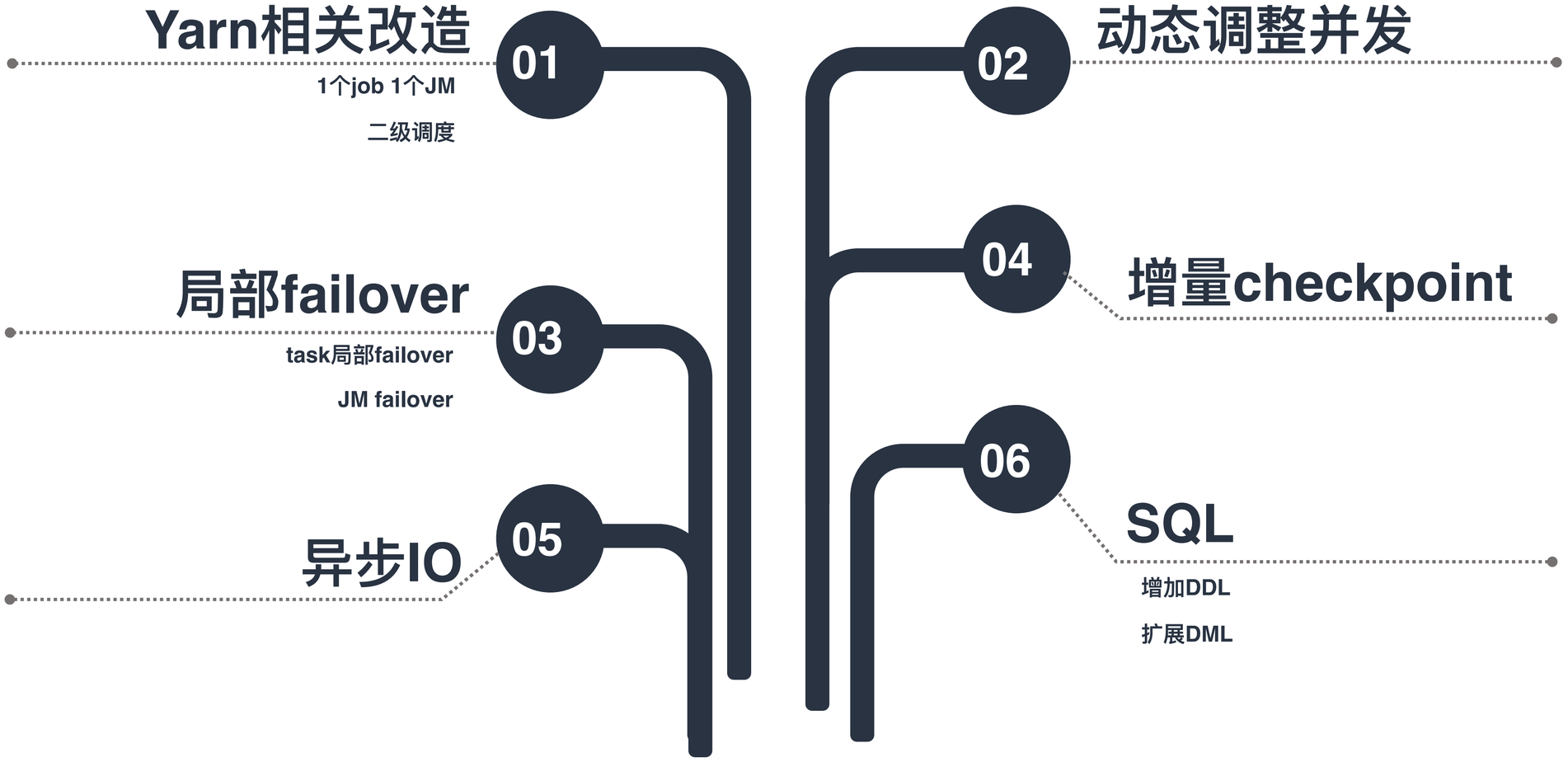
+

Productization

=

StreamCompute

02 基于Flink的流计算平台



02 基于Flink的流计算平台

UDF/UDTF/UDAF

Stream JOIN, etc.

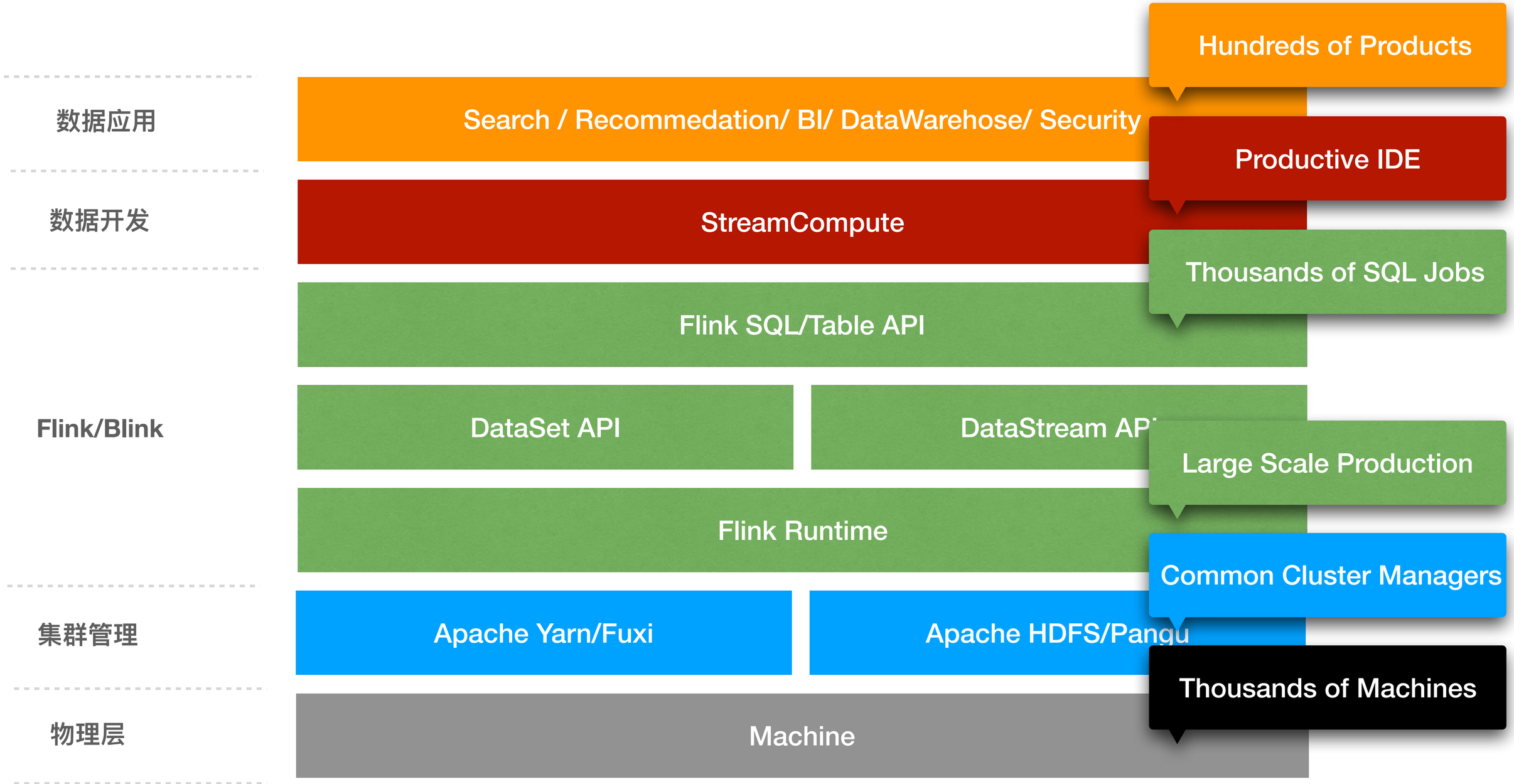
Retraction

Window AGG

DML: INSERT etc.

DDL

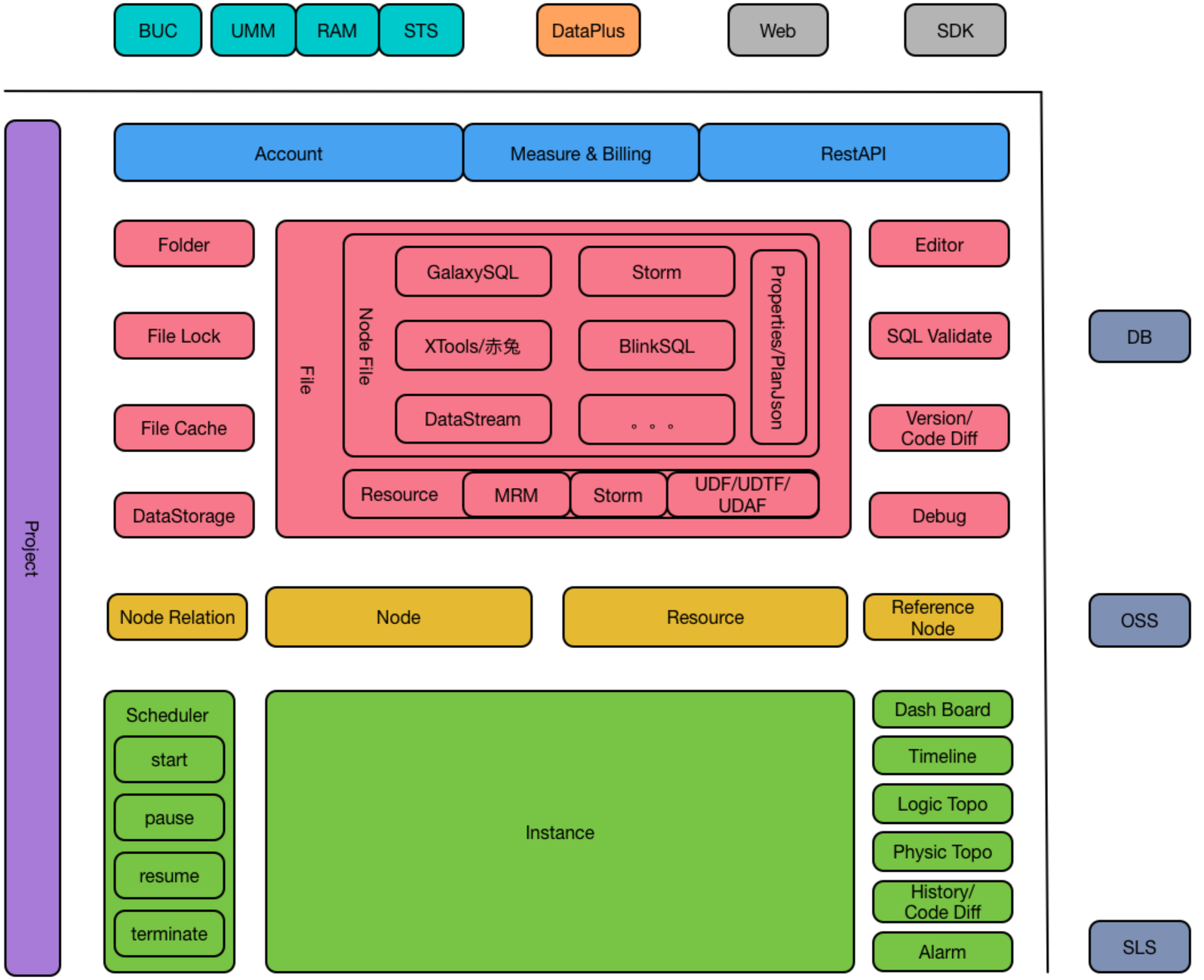
SQL改造


数据应用
Search / Recommedation/ BI/ DataWarehose/ Security
Hundreds of Products
数据开发
StreamCompute
Productive IDE
Flink SQL/Table API
Thousands of SQL Jobs
Flink/Blink
DataSet API
DataStream API
Large Scale Production
Flink Runtime
Common Cluster Managers
集群管理
Apache Yarn/Fuxi
Apache HDFS/Pangu
Thousands of Machines
物理层
Machine

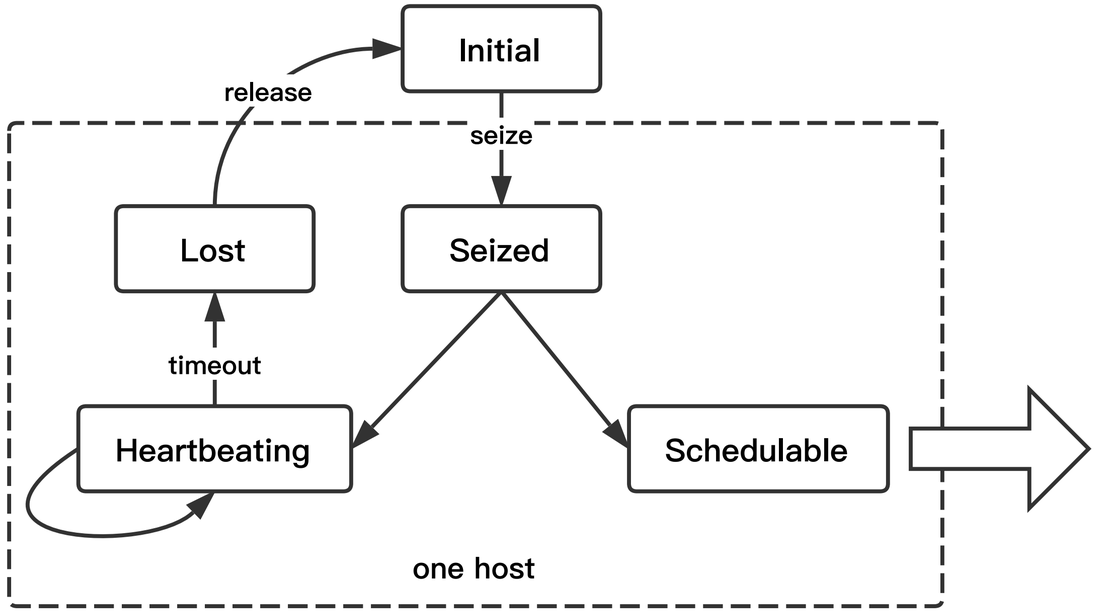
基于Blink的流计算平台

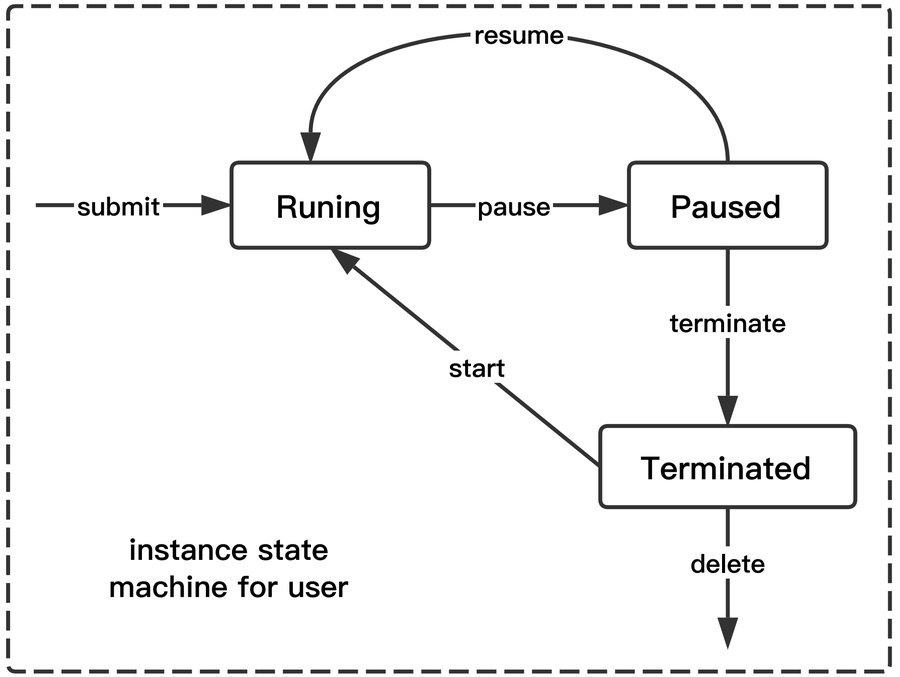
—namespace：project
—阿里云账号权限体系
—一站式
- 数据探查
- 数据开发
- 数据运维
- 性能调优
- 监控报警

—轻量化

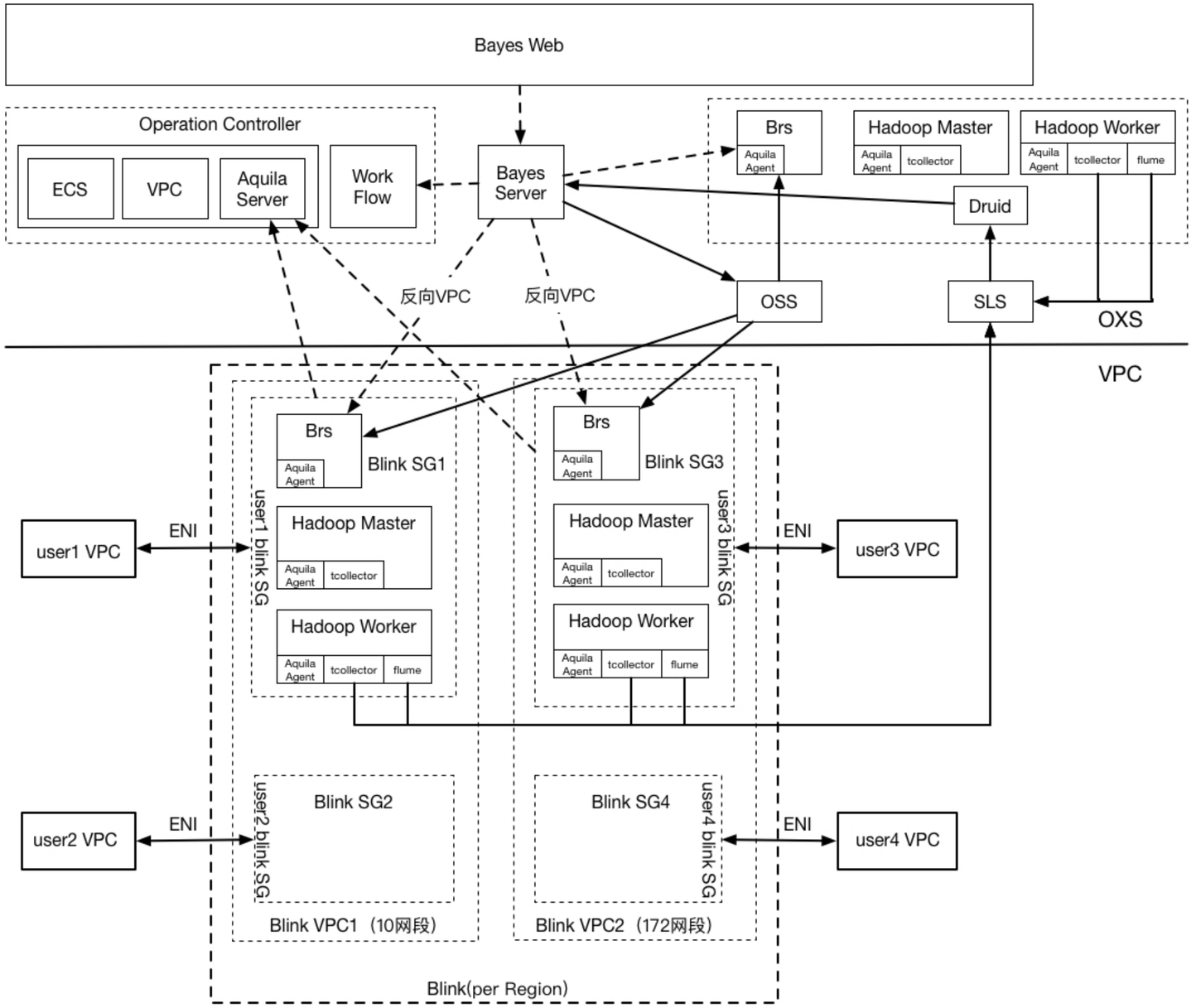


02 基于Flink的流计算平台






```
<!-- 抢占待运行instance ！ -->
<update id="seizeInstance"...>

<!-- 给抢占的且运行的instance发心跳 ！ -->
<update id="heartbeatInstances"...>
```


Bayes Web
Operation Controller
ECS
VPC
Aquila Server
Work Flow
Bayes Server
Brs
Aquila Agent
Hadoop Master
Aquila Agent
tcollector
Hadoop Worker
Aquila Agent
tcollector
flume
Druid
反向VPC
反向VPC
OSS
SLS
OXS
VPC
Brs
Aquila Agent
Blink SG1
Hadoop Master
Aquila Agent
tcollector
Hadoop Worker
Aquila Agent
tcollector
flume
user1 blink SG
Brs
Aquila Agent
Blink SG3
Hadoop Master
Aquila Agent
tcollector
Hadoop Worker
Aquila Agent
tcollector
flume
user3 blink SG
user1 VPC
ENI
ENI
user3 VPC
Blink SG2
user2 blink SG
Blink SG4
user4 blink SG
user2 VPC
ENI
ENI
user4 VPC
Blink VPC1（10网段）
Blink VPC2（172网段）
Blink(per Region)

02

基于Flink的流计算平台

02 基于Flink的流计算平台

Declarative

Optimizable

Understandable

Stable

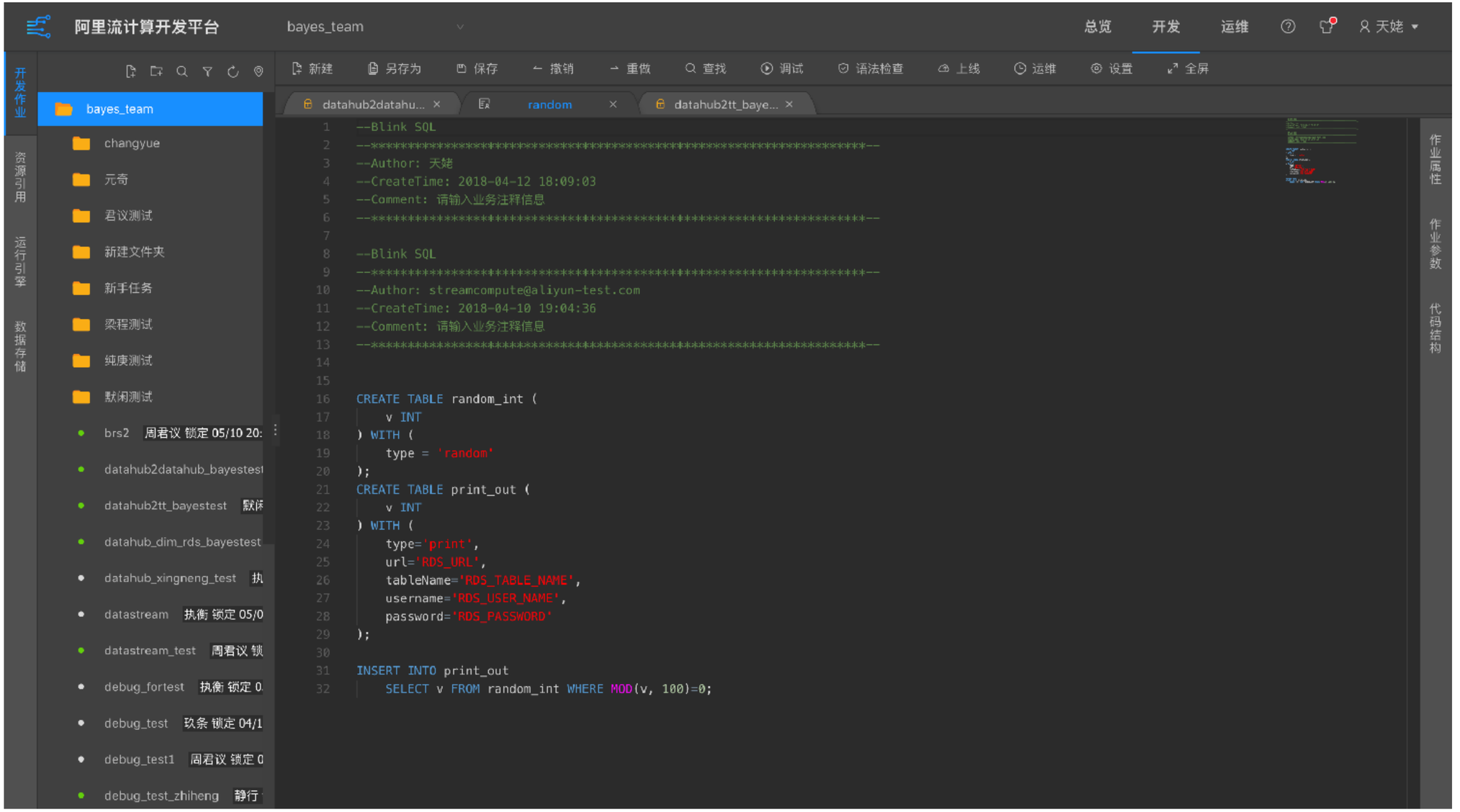
Unify

Cross-language

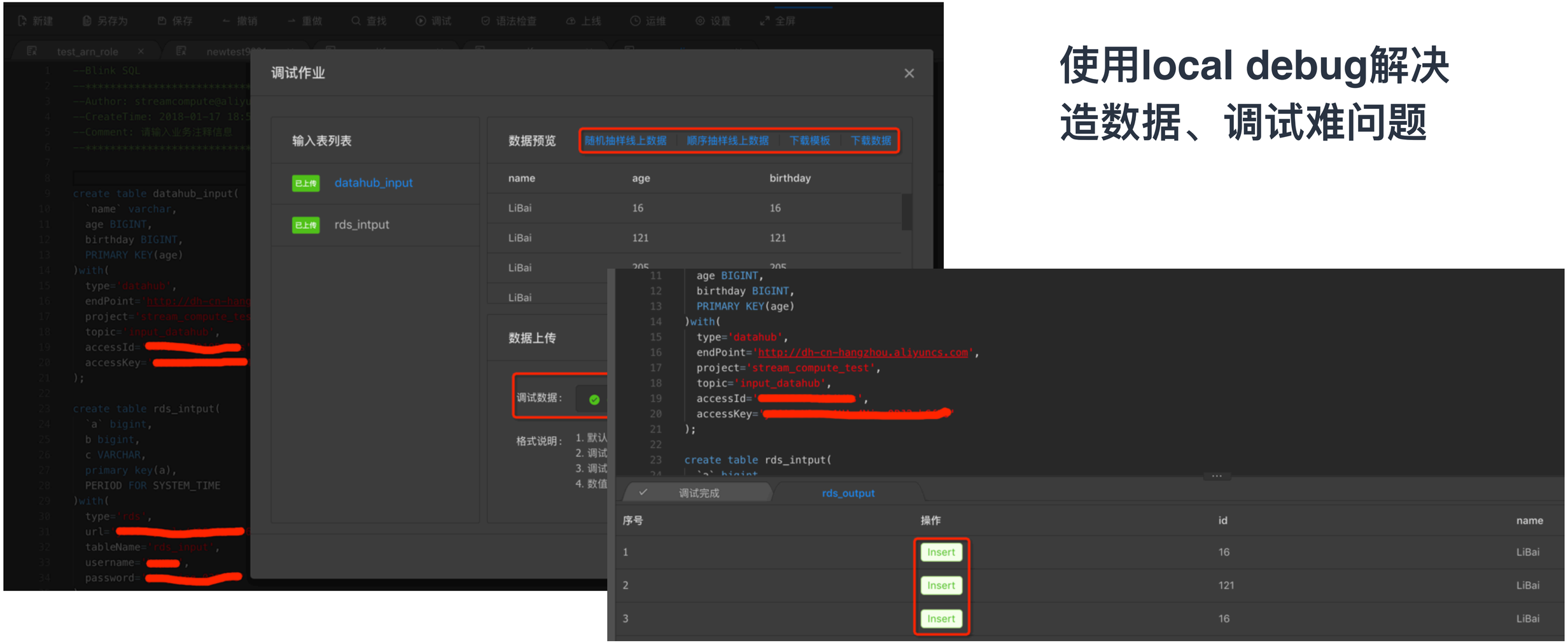
使用SQL+UDX解决底层API问题

```
CREATE VIEW tmp_gift_info_view_m1 as
select a.pf,(case when c.typeId is null then 16 when c.typeId='' then 16 else c.typ
a.`user_id`,a.user_nick,
a.gift_cost,a.gift_count,a.dateline,DATE_FORMAT(a.dayid,'yyyyMMdd') as dayid
from(
select d.platform as pf,g.cate_id,g.room_id,g.room_nick,g.`user_id`, g.user_nick,
g.price as gift_cost,g.gift_count ,g.`datetime` dateline,g.`datetime` as dayid
from gift_v1 g
left join ods_wb_platform_i_tbl FOR SYSTEM_TIME AS OF PROCTIME() AS d
on g.plat=d.alias
) as a
LEFT join ods_wb_categories_i_tbl  FOR SYSTEM_TIME AS OF PROCTIME() AS c
on a.cate_id=c.cateId and a.pf=c.platform
;

--1m
CREATE VIEW tmp_gift_info_view_m2 as
select cast(pf as int) pf,cast(typeId as int) typeId,1 as `anchorType`,room_id,roo
cast(TUMBLE_START(dateline, interval '1' MINUTE) as timeStamp)  as start_time,
cast(TUMBLE_END(dateline, interval '1' MINUTE) as timeStamp)  AS end_time,
dayid
from
tmp_gift_info_view_m1 as b
GROUP BY TUMBLE(dateline, interval '1' MINUTE),pf,typeId,room_id,room_nick,dayid
;

--5m
CREATE VIEW tmp_gift_info_view_5m as
select cast(pf as int) pf,cast(typeId as int) typeId,1 as `anchorType`,room_id,roo
cast(HOP_START(dateline, interval '1' MINUTE, interval '5' MINUTE) as timeStamp)
cast(HOP_END(dateline, interval '1' MINUTE, interval '5' MINUTE) as timeStamp)  AS
dayid
from
tmp_gift_info_view_m1 as b
GROUP BY Hop(dateline, interval '1' MINUTE, interval '5' MINUTE),pf,typeId,room_id
;
```

02 基于Flink的流计算平台



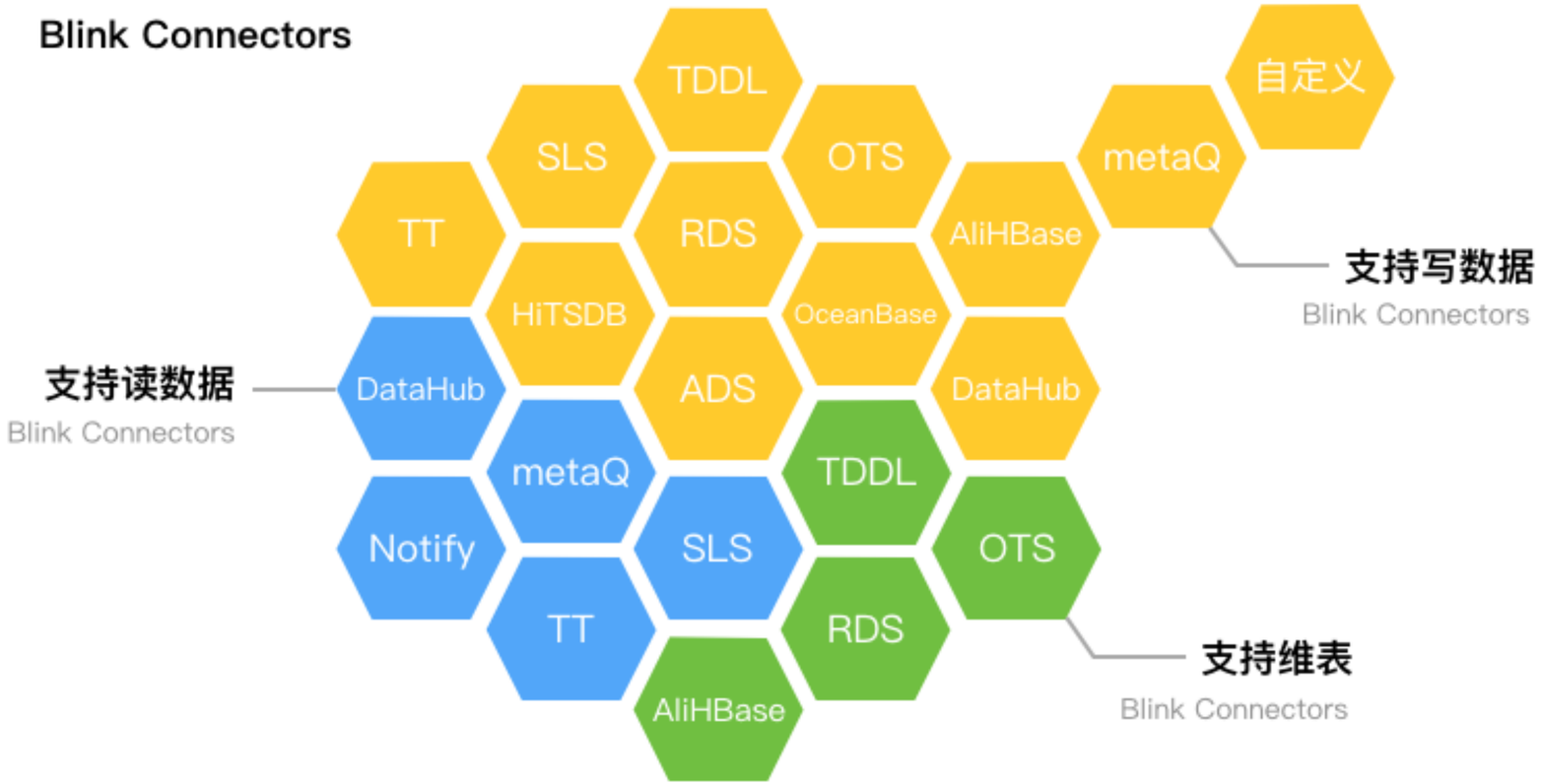
02 基于Flink的流计算平台



使用local debug解决造数据、调试难问题

02

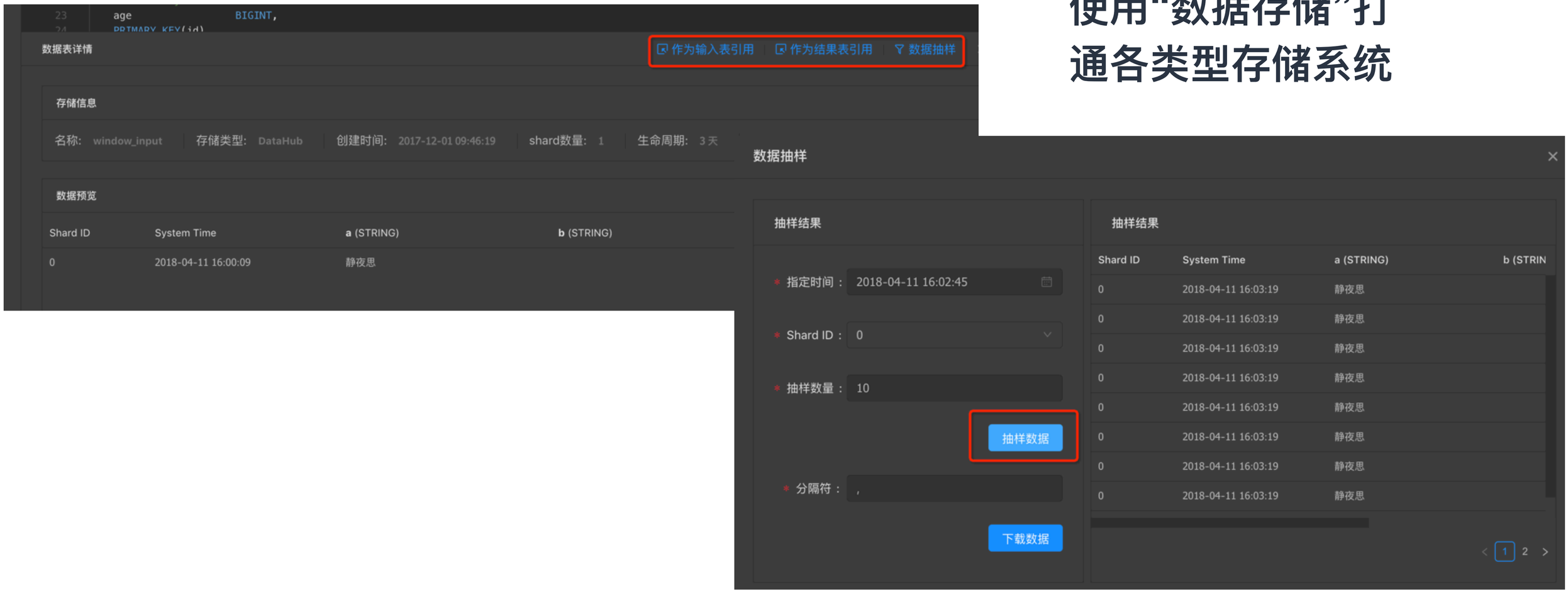
基于Flink的流计算平台



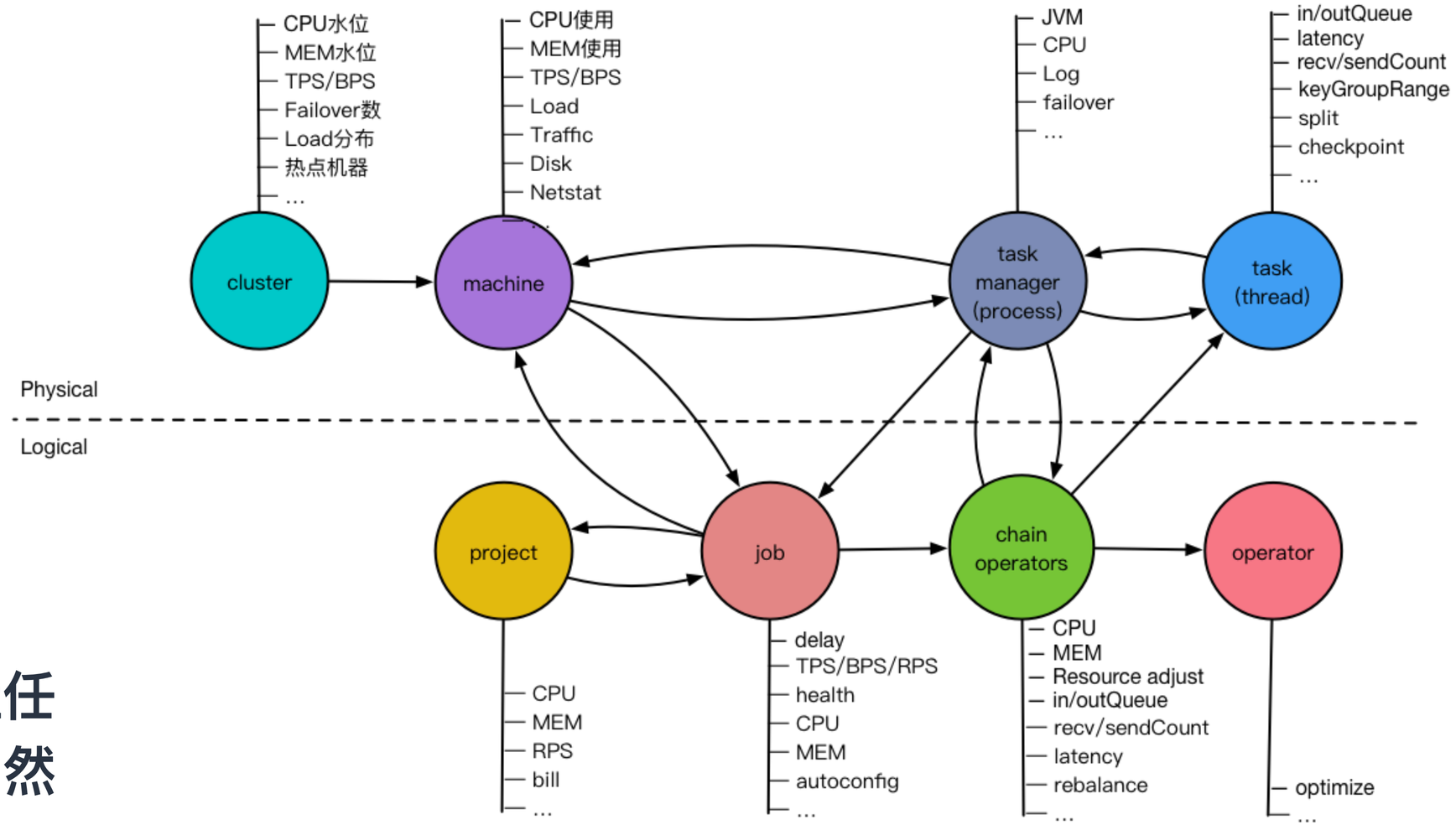
丰富的connector

02 基于Flink的流计算平台

使用“数据存储”打通各类型存储系统



02 基于Flink的流计算平台



丰富的指标曲线让任务健康状况一目了然

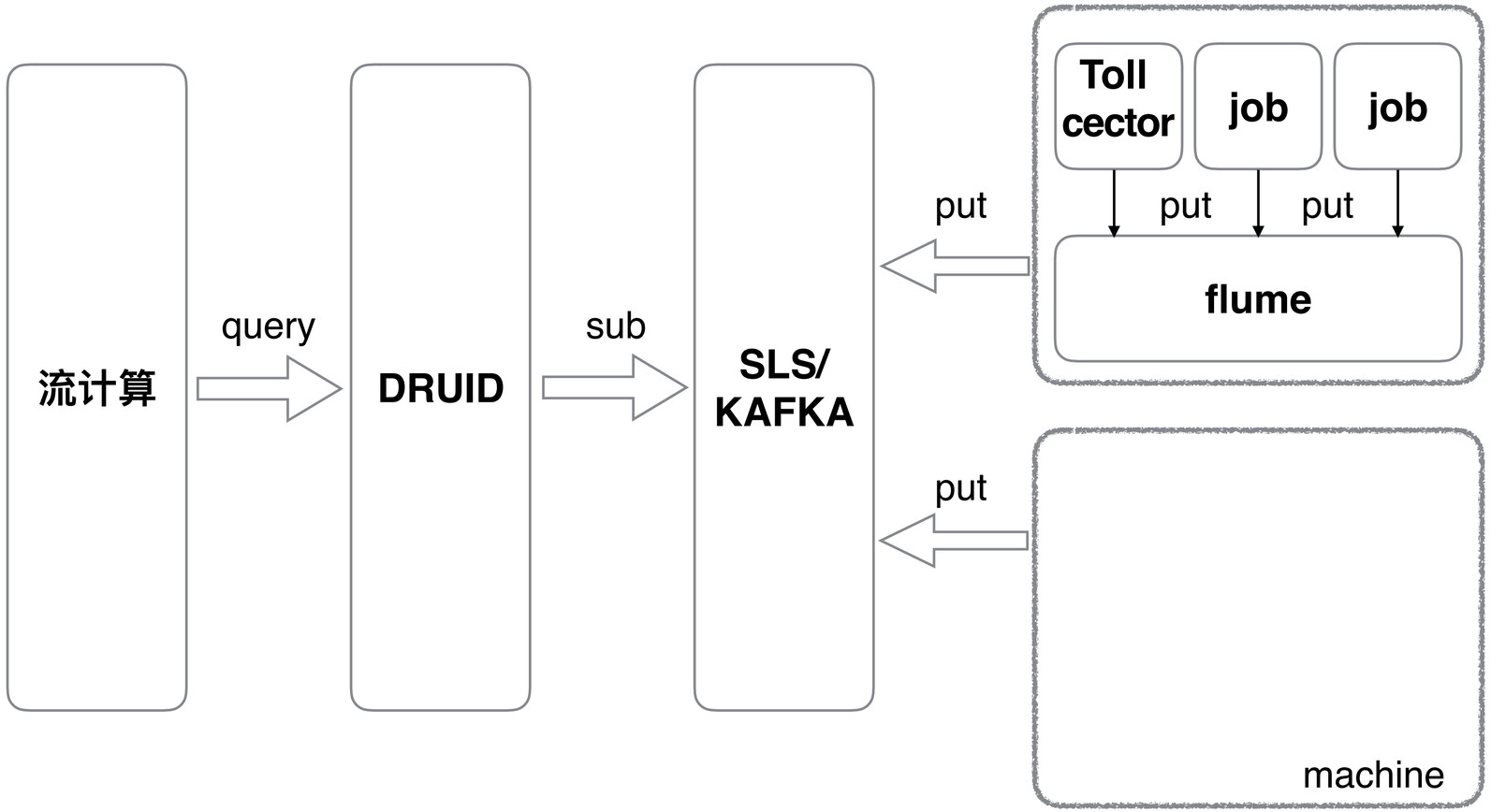
02 基于Flink的流计算平台

丰富的指标曲线让任务健康状况一目了然

02

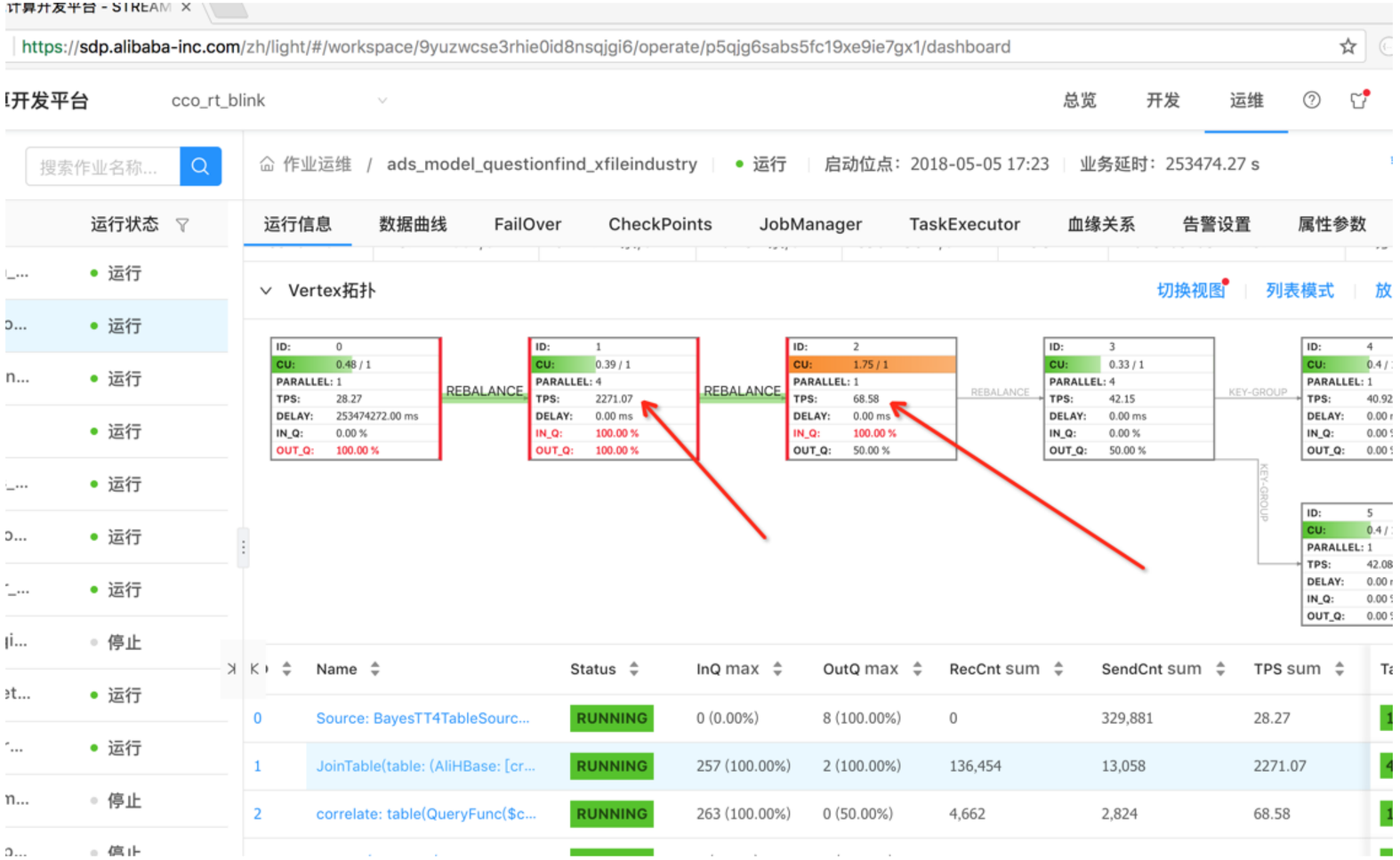
基于Flink的流计算平台

指标采集流程



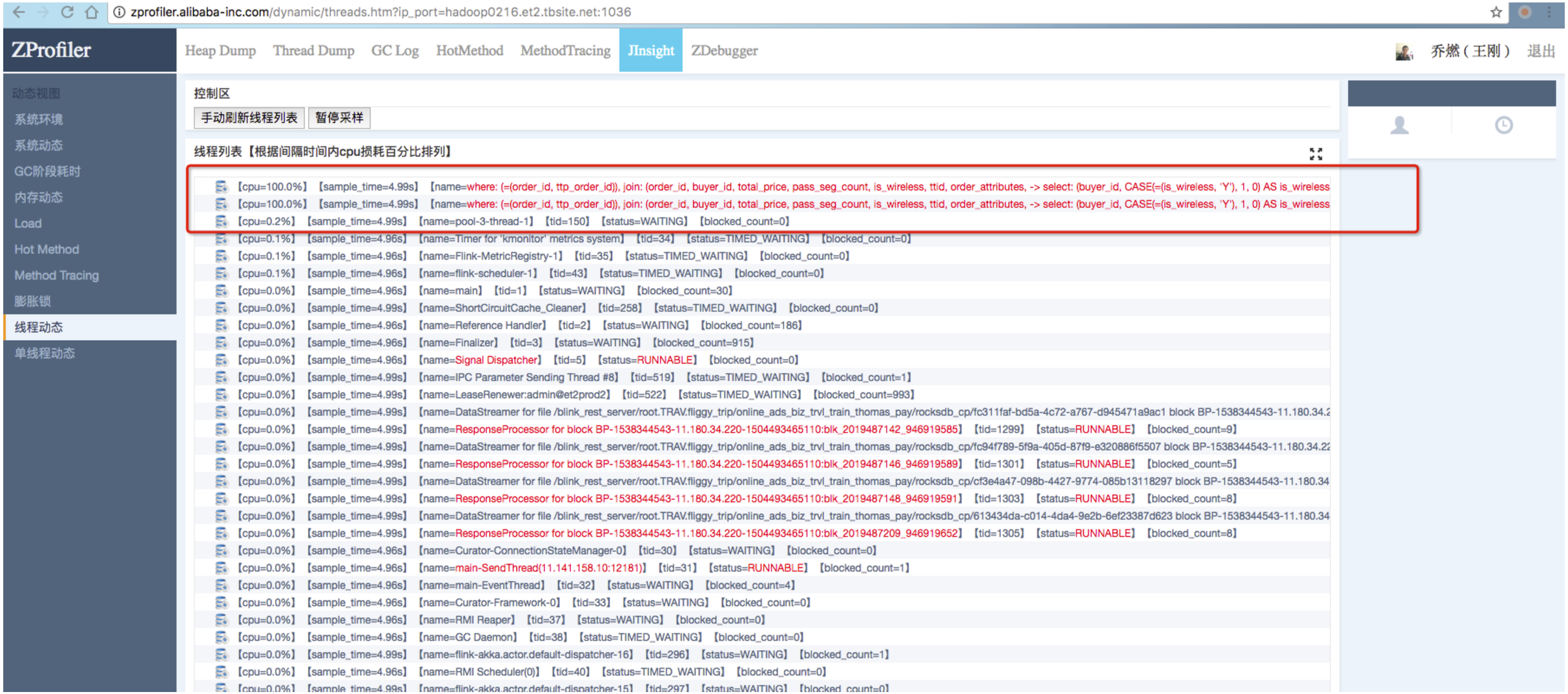
02

基于Flink的流计算平台

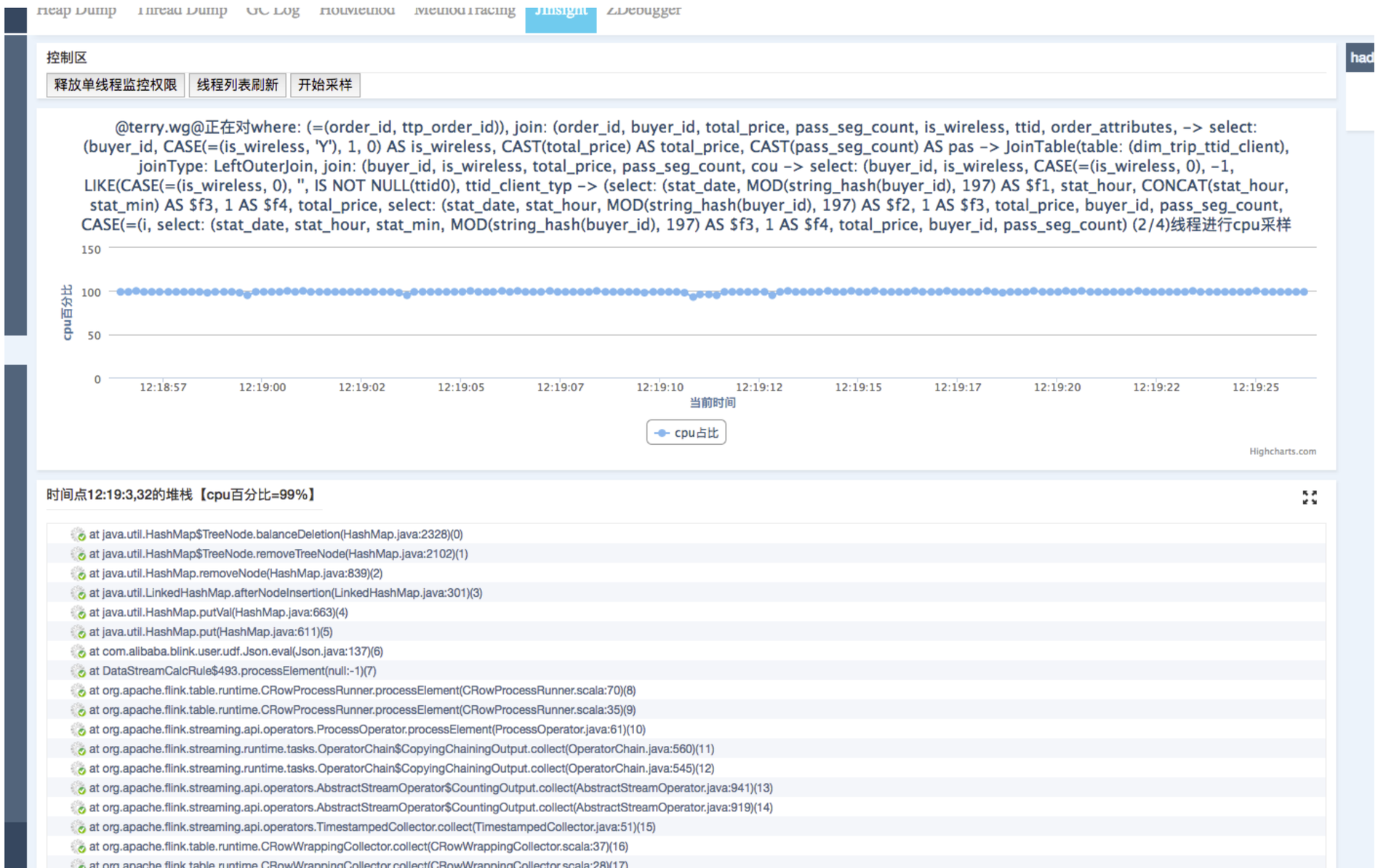


调优

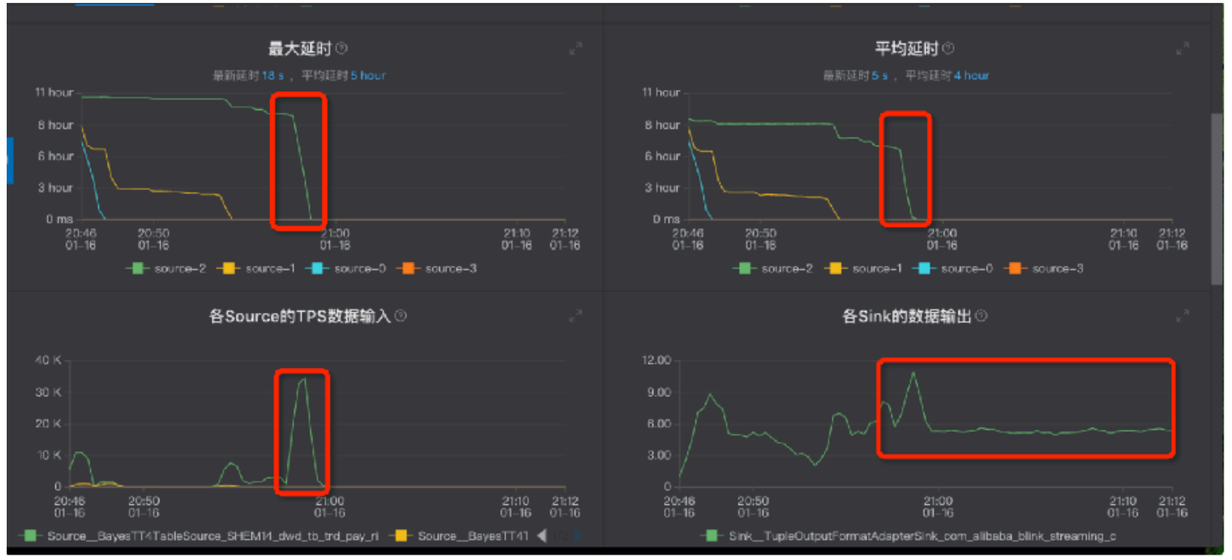
02 基于Flink的流计算平台



02 基于Flink的流计算平台

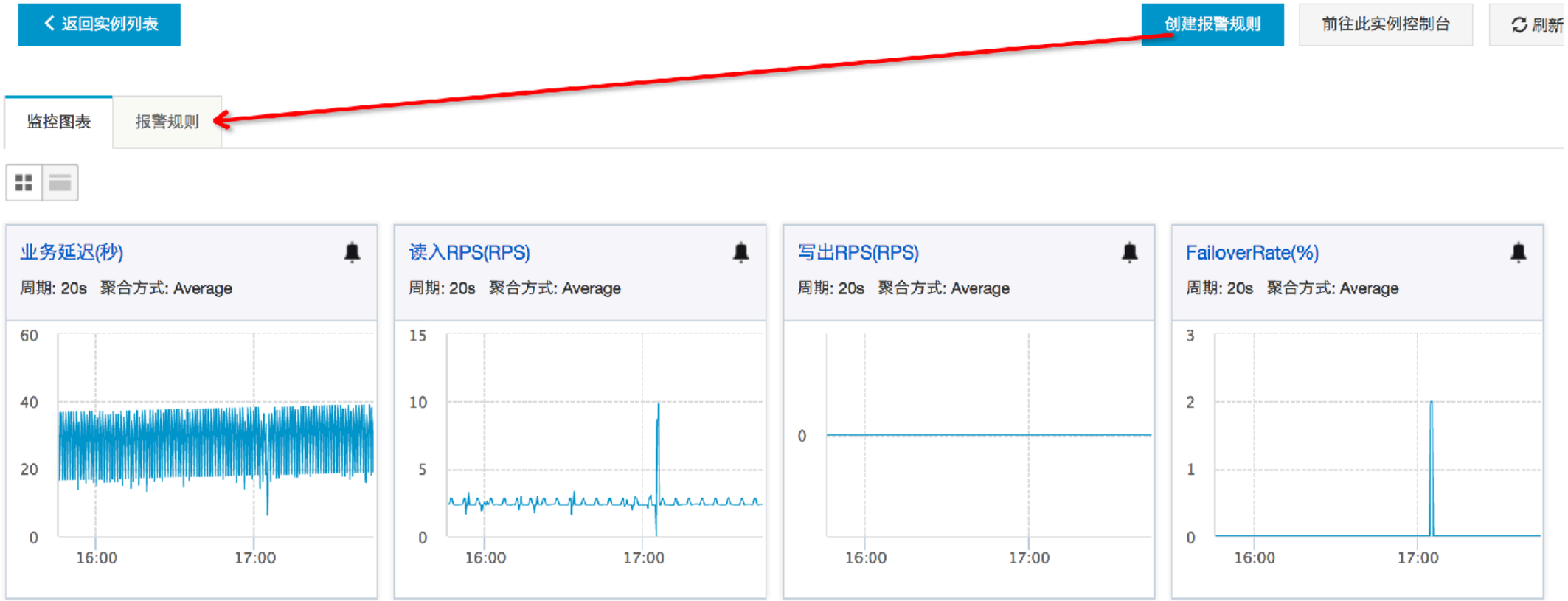


02 基于Flink的流计算平台



智能调优 + 手动
灵活的资源配置

02 基于Flink的流计算平台



统一云监控配置告警

02 安全-RAM

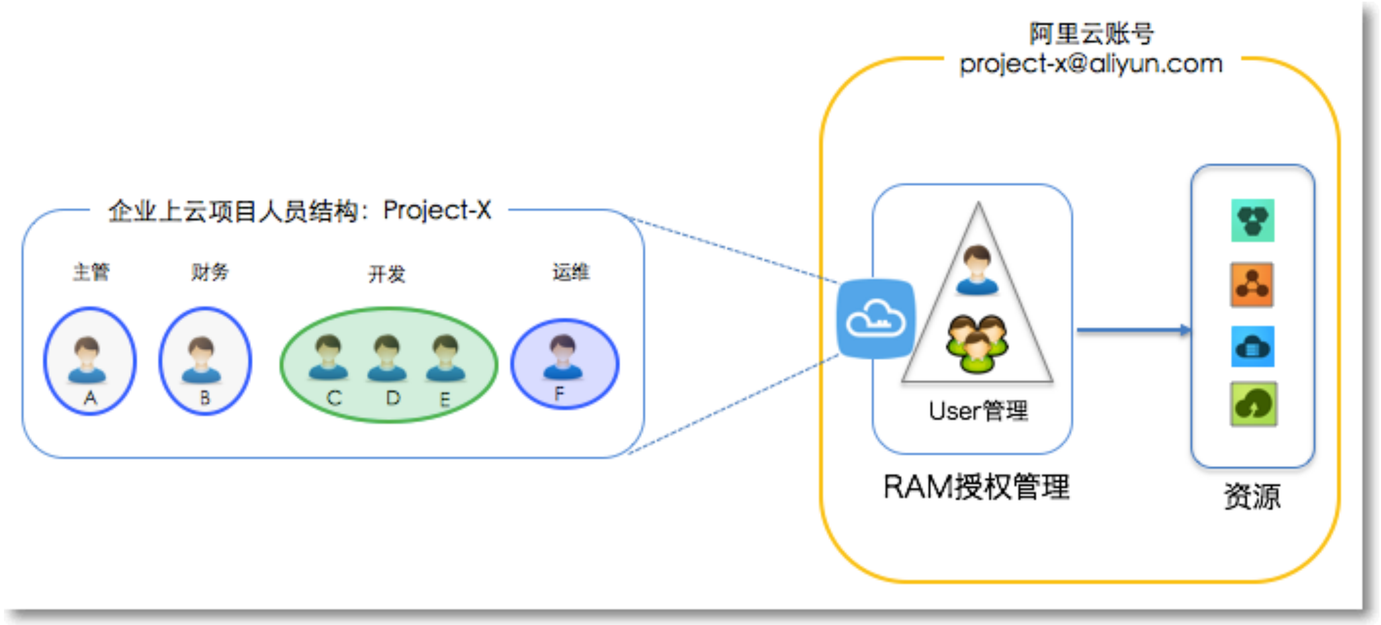
1.支持子用户授权

2.支持带IP/SSL限制的授权

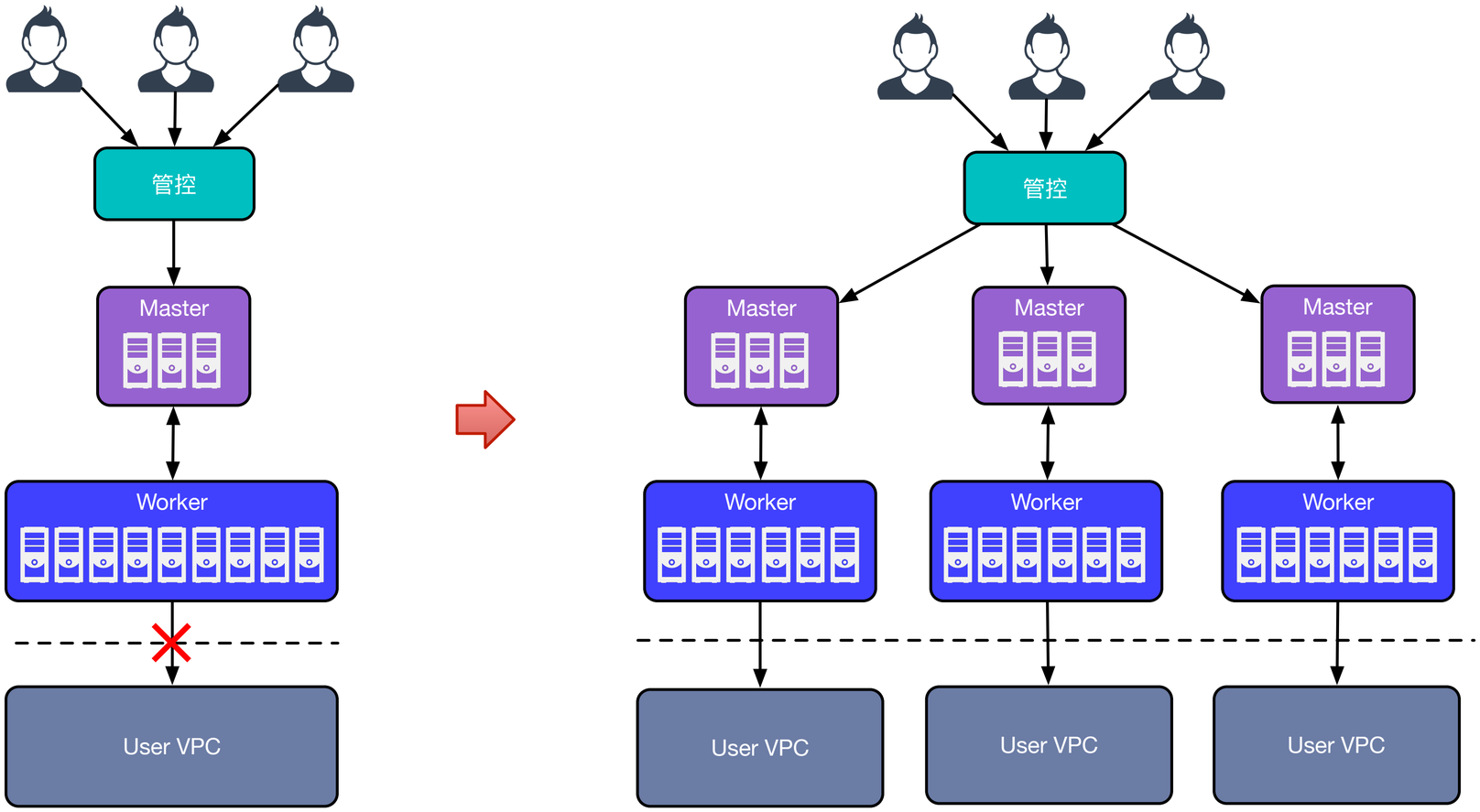
3.支持带MFA限制的授权

4.带时间限制的授权

…



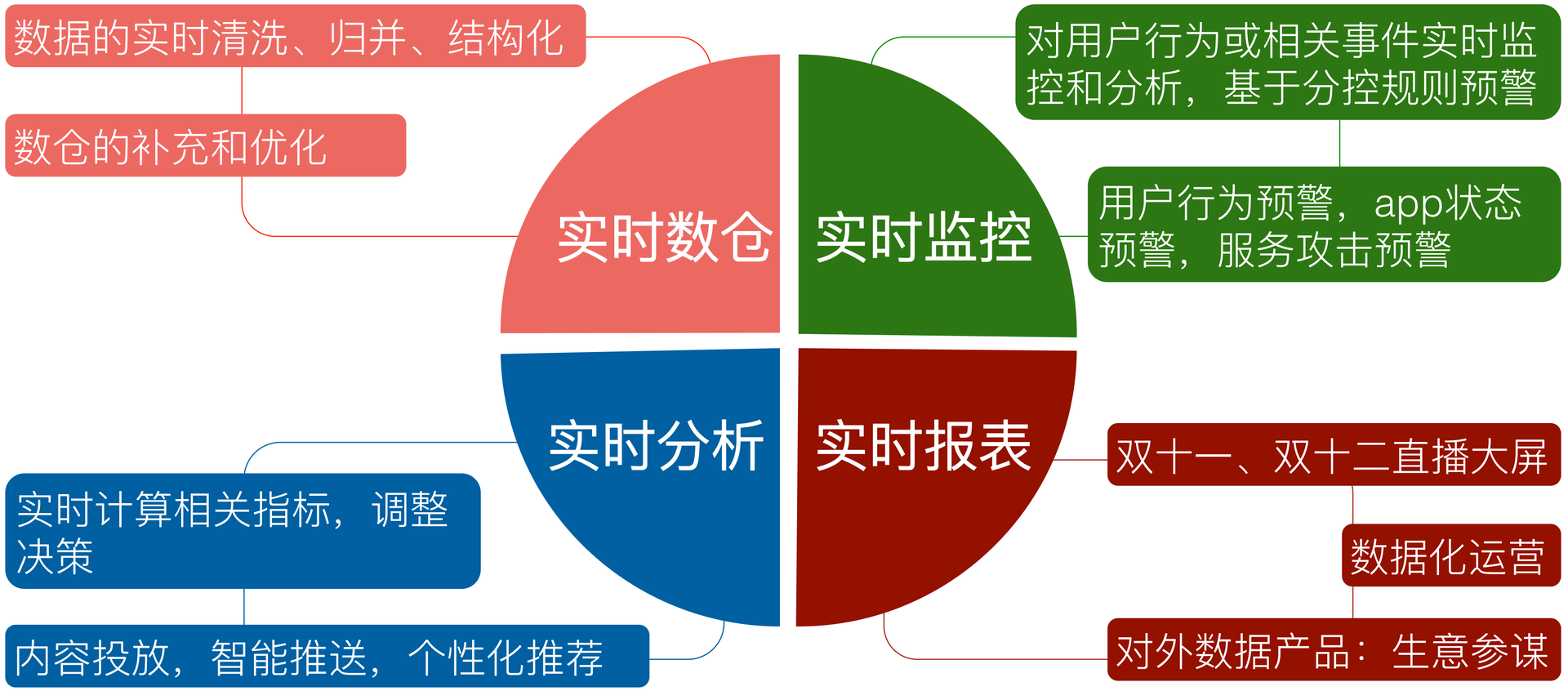
02 安全-小集群化



逻辑隔离

物理隔离

02 流计算场景


数据的实时清洗、归并、结构化
数仓的补充和优化
实时数仓
对用户行为或相关事件实时监控和分析，基于分控规则预警
用户行为预警，app状态预警，服务攻击预警
实时监控
实时计算相关指标，调整决策
内容投放，智能推送，个性化推荐
实时分析
双十一、双十二直播大屏
数据化运营
对外数据产品：生意参谋
实时报表

Thanks

Q&A