

Data Transfer Service on Tencent Cloud

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Agenda

□ What is DTS?

□ DTS Design

□ DTS Failover

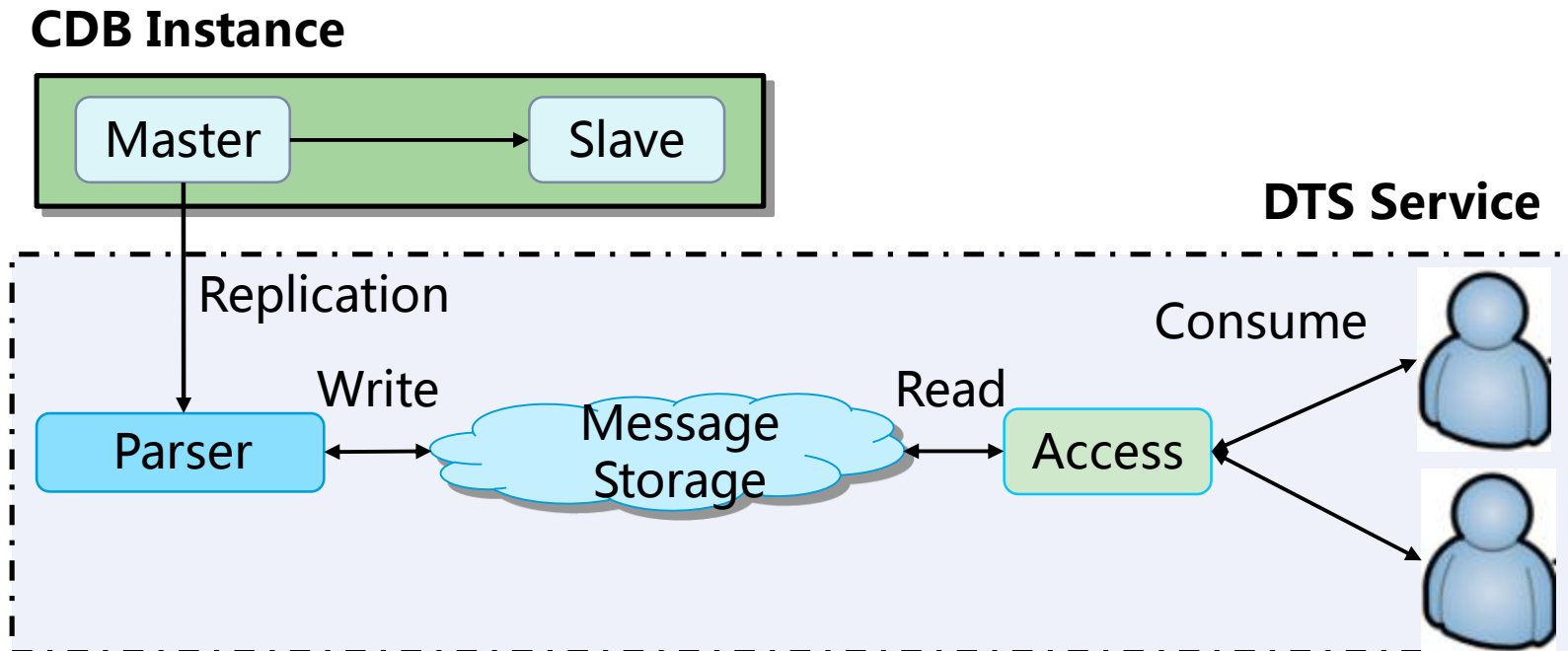
□ DTS on Tencent Cloud

Agenda

What is DTS?

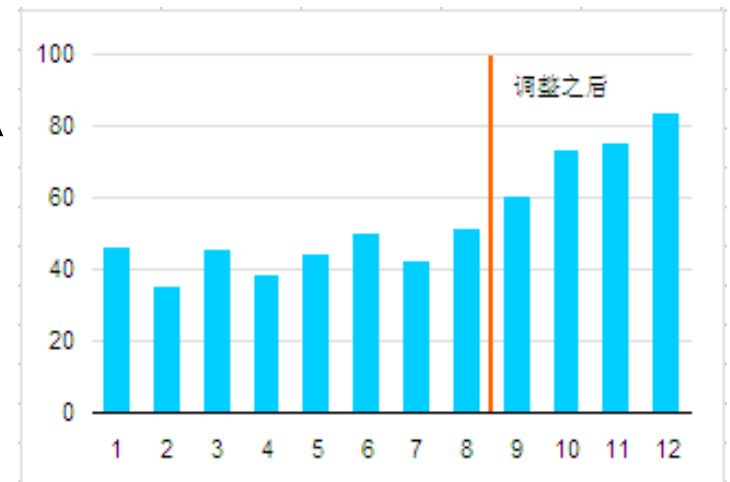
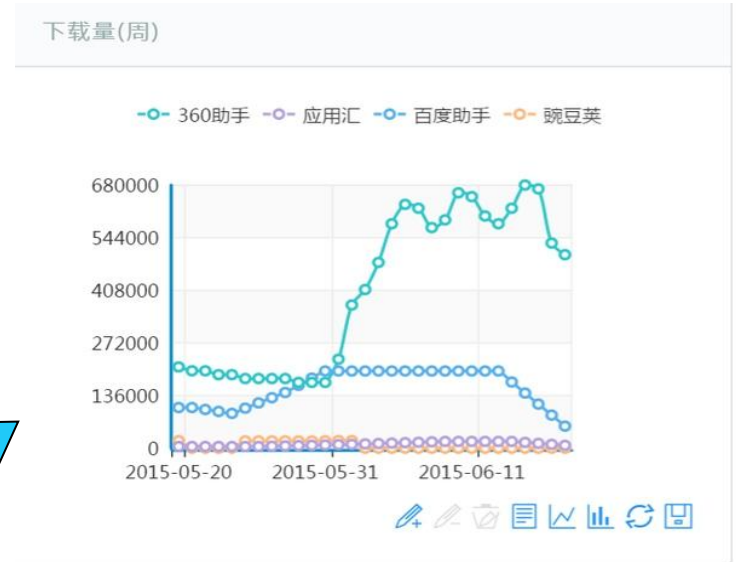
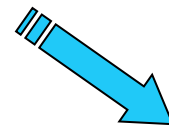
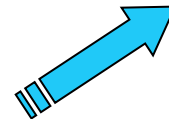
What is DTS?

- ✓ A Data Transfer Service(DTS)
- ✓ Parse the MySQL binary log
- ✓ Output the event metadata



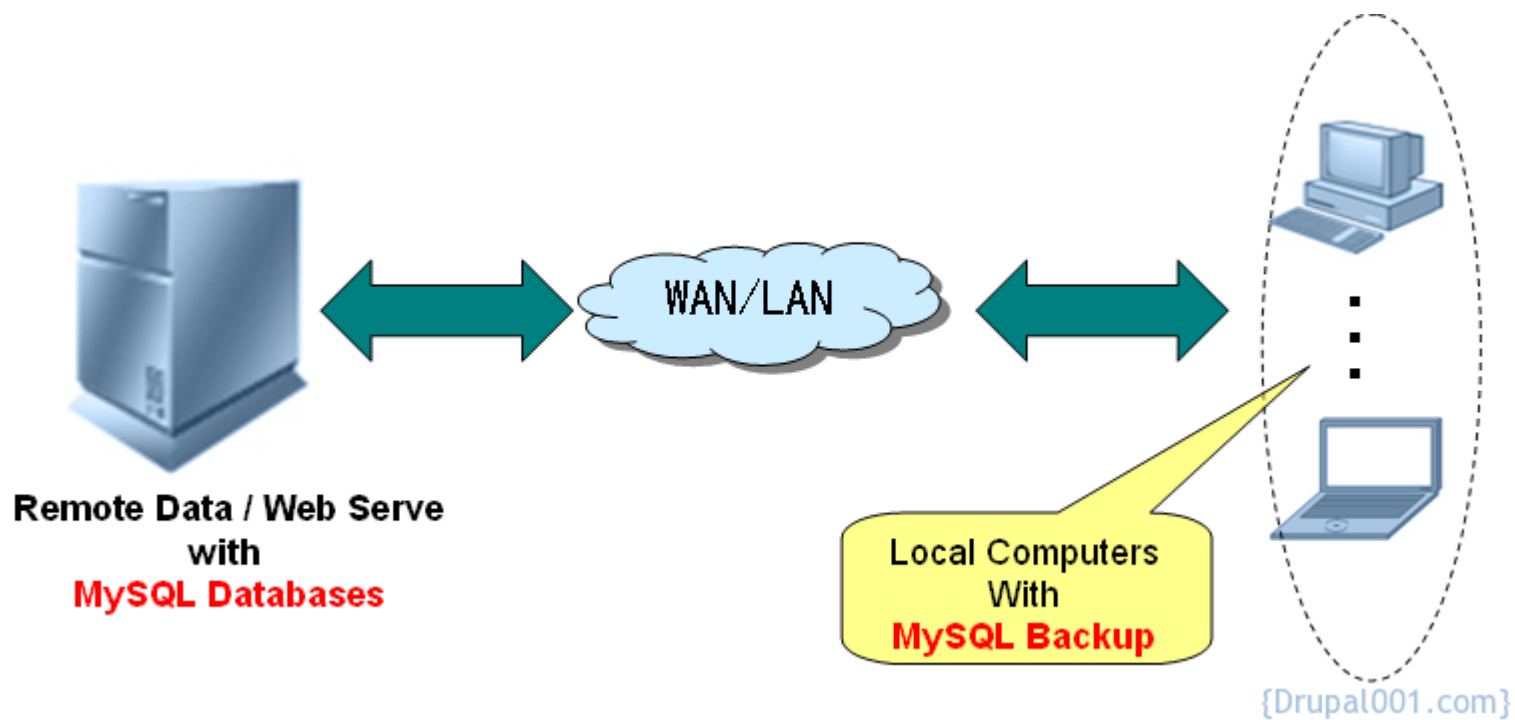
Scenario

✓ Data Mining



Scenario

✓ Database Mirror & Backup



Scenario

✓ Operational Audit



Open Source

✓ Maxwell (Zendesk, java)

1. <https://developer.zendesk.com/blog/introducing-maxwell-a-mysql-to-kafka-binlog-processor>
2. <https://github.com/zendesk/maxwell>

✓ Ybinlogp (Yelp, python)

1. <https://github.com/Yelp/ybinlogp>

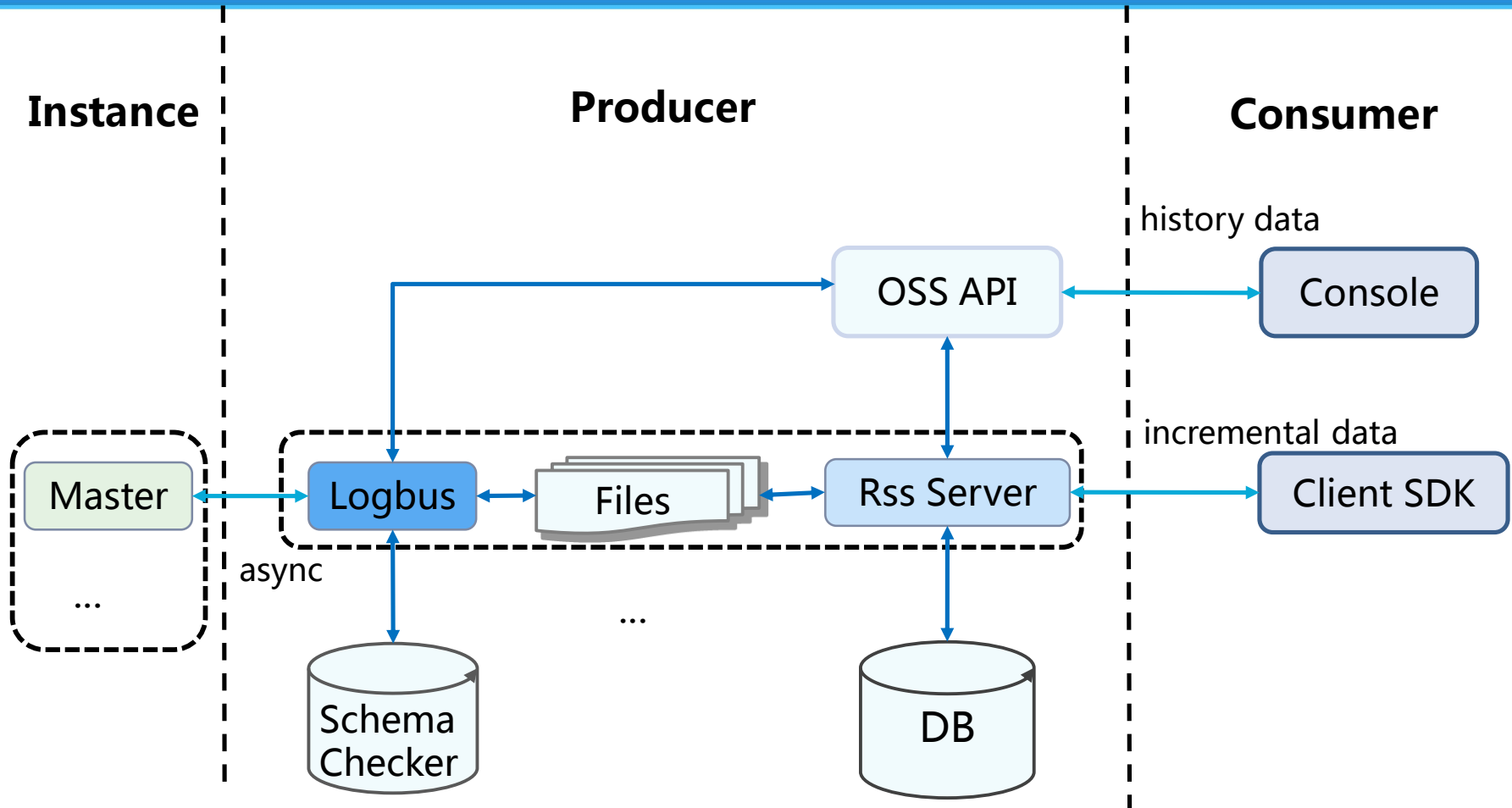
✓ Canal (Ali, java)

1. <https://github.com/alibaba/canal>

Agenda

DTS Design

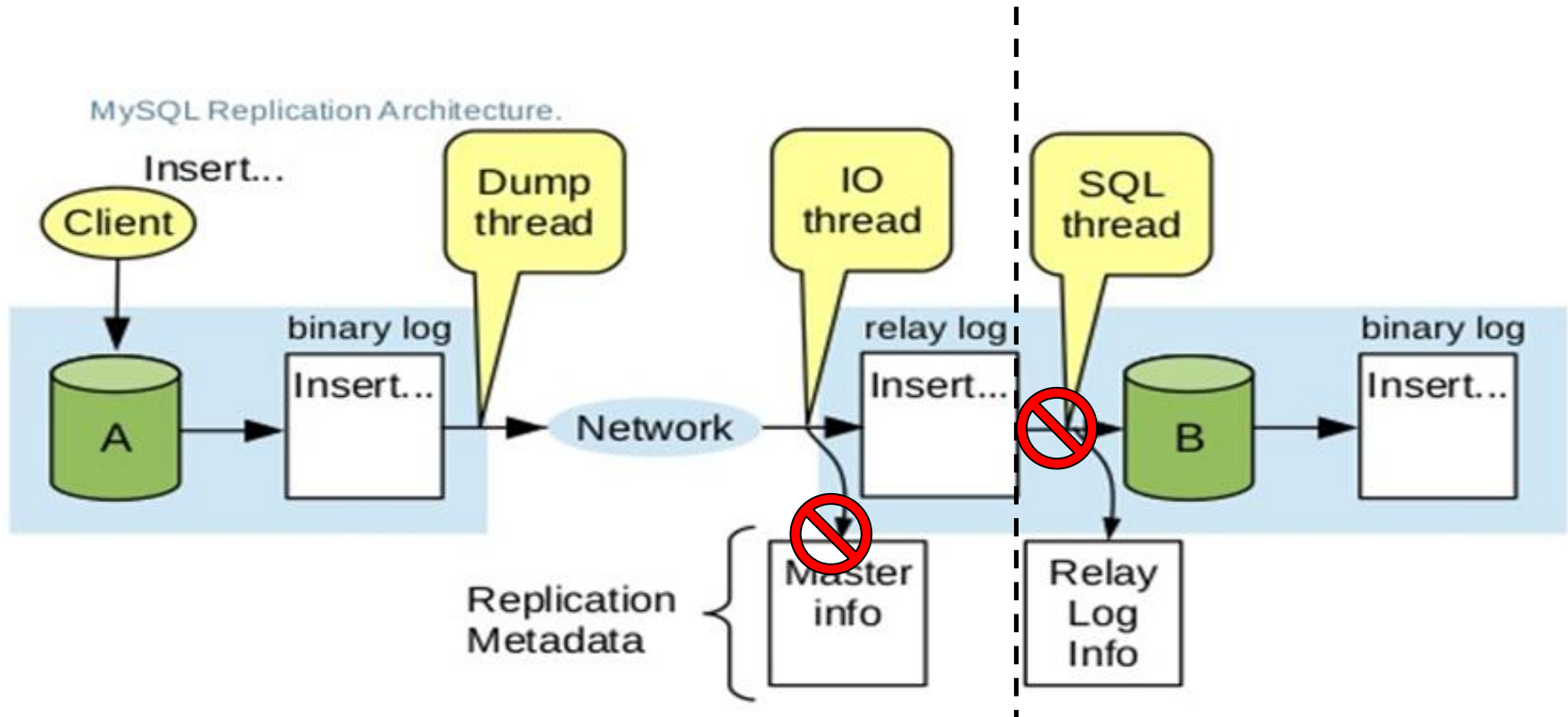
Basic Architecture



- ✓ Replication
- ✓ Binlog Parse

- ✓ Message Storage
- ✓ Consume

Replication



- ✓ Much less disk IO
- ✓ Lockless
- ✓ Simple & controllable

Binlog Parse

□ Function

```
#170110 19:58:46 server id 78519 end_log_pos 1233      GTID [commit=yes]
SET @@SESSION.GTID_NEXT= '7f9ae18b-5a18-11e6-9e5b-9c37f403079c:2875474'/*!*/;
#170110 19:58:46 server id 78519 end_log_pos 1305      Query  thread_id=15868
BEGIN;
#170110 19:58:46 server id 78519 end_log_pos 1351      Table_map: `dts_test`.`t`
#170110 19:58:46 server id 78519 end_log_pos 1394      Delete_rows: table id 70
### DELETE FROM `dts_test`.`t`
### WHERE
###   @1=2 /* INT meta=0 nullable=0 is_null=0 */
###   @2='polli' /* BLOB/TEXT meta=2 nullable=1 is_null=0 */
#170110 19:58:46 server id 78519 end_log_pos 1421      Xid = 34995
COMMIT;
```



```
type      : delete
database: dts_test
table     : t
field_list : [
  {name: id,   val: 2,   type: int},
  {name: data, val: polli, type: text}
]
```

□ Demand

- ✓ Version: 5.6+
- ✓ Binlog Format: ROW
- ✓ binlog_row_image: full

Binlog Example

✓ DDL

```
#170110 19:55:55 server id 78519 end_log_pos 537          GTID [commit=yes]
SET @@SESSION.GTID_NEXT= '7f9ae18b-5a18-11e6-9e5b-9c37f403079c:2875471'/*!*/;
#170110 19:55:55 server id 78519 end_log_pos 685          Query  thread_id=15868
use `dts_test`/*!*/;
SET TIMESTAMP=1484049355/*!*/;
create table t(`id` int auto_increment, `msg` text, primary key(`id`));
```

✓ DML

```
#170110 19:58:46 server id 78519 end_log_pos 1233        GTID [commit=yes]
SET @@SESSION.GTID_NEXT= '7f9ae18b-5a18-11e6-9e5b-9c37f403079c:2875474'/*!*/;
#170110 19:58:46 server id 78519 end_log_pos 1305        Query  thread_id=15868
BEGIN;
#170110 19:58:46 server id 78519 end_log_pos 1351        Table_map: `dts_test`.`t` mapped to number70
#170110 19:58:46 server id 78519 end_log_pos 1394        Delete_rows: table id 70 flags: STMT_END_F
### DELETE FROM `dts_test`.`t`
### WHERE
###   @1=2 /* INT meta=0 nullable=0 is_null=0 */
###   @2='polli' /* BLOB/TEXT meta=2 nullable=1 is_null=0 */
#170110 19:58:46 server id 78519 end_log_pos 1421        Xid = 34995
COMMIT;
```

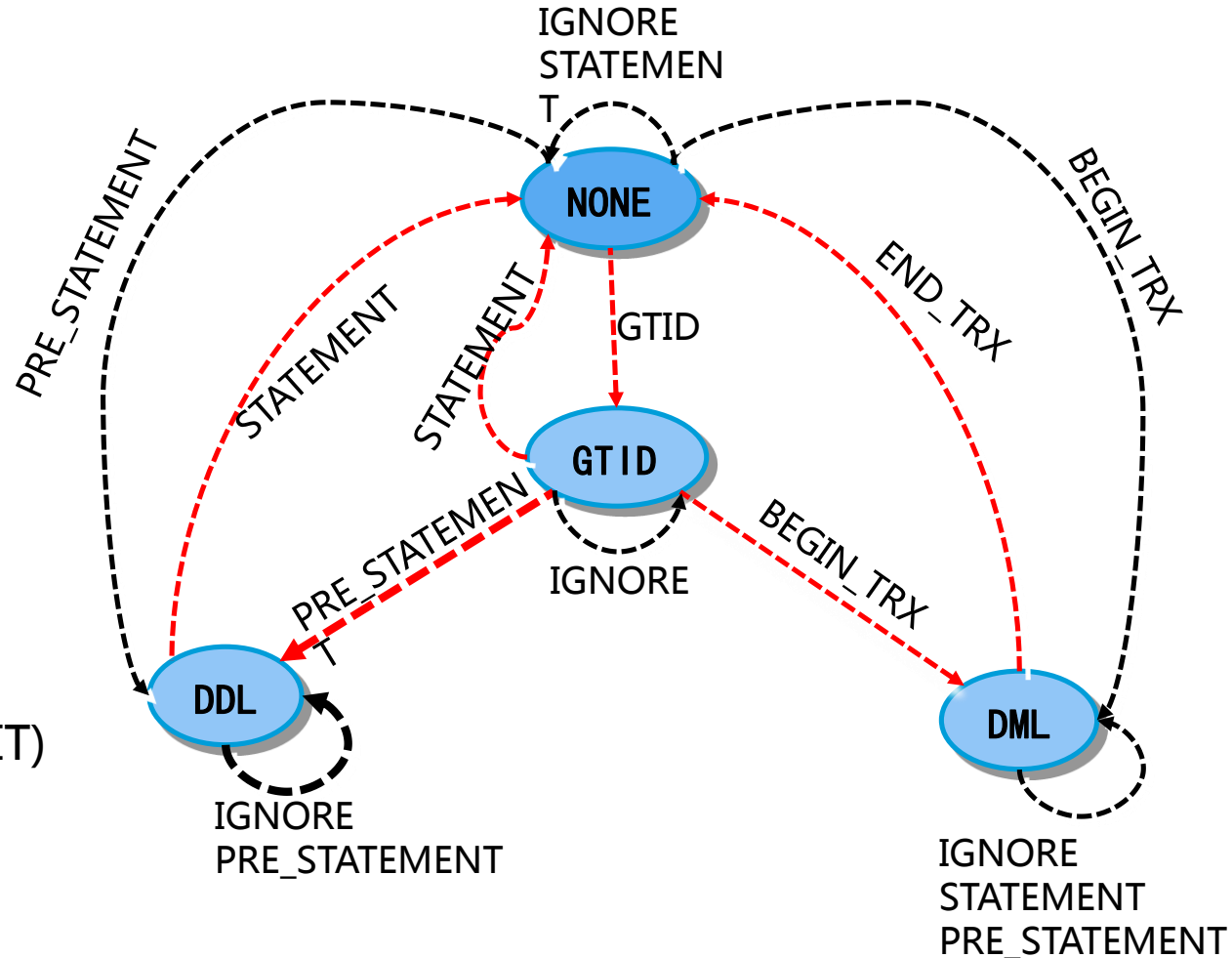
Transaction Abstract

✓ DDL

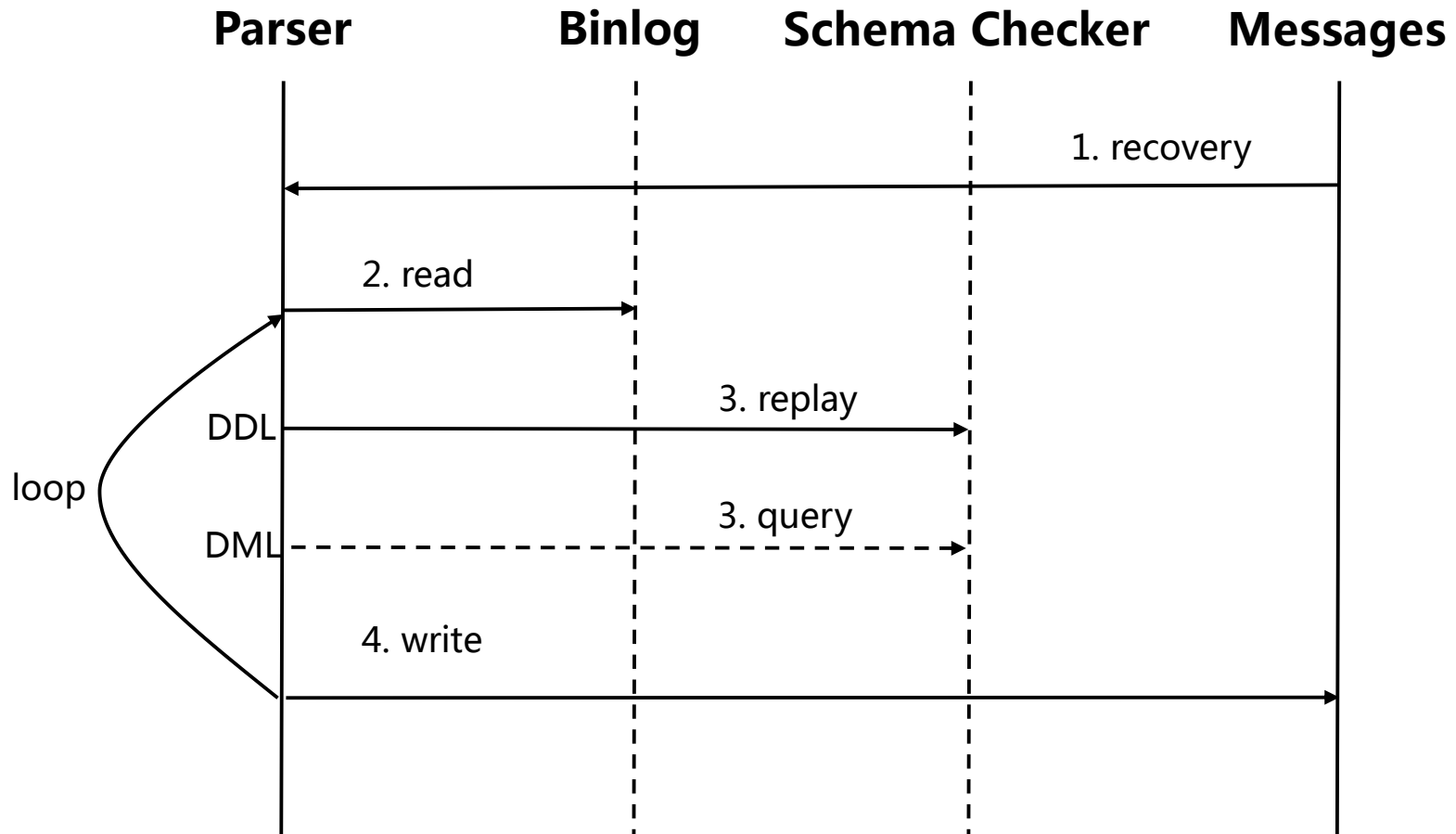
- DDL-1: GTID
- DDL-2: Query

✓ DML

- DML-1: GTID
- DML-2: Query(BEGIN)
- DML-3: Statements
- DML-4: Query(COMMIT)



Parse Process



Message Storage

□ Support

- ✓ repeat consumption
- ✓ consumption by time range
- ✓ rollback by time point
- ✓ real-time consumption

□ Storage

- ✓ Message Queue
 - not support repeat consumption
 - not support consumption by time range
 - not support rollback by time point
- ✓ Database
 - not support real-time consumption



Message File

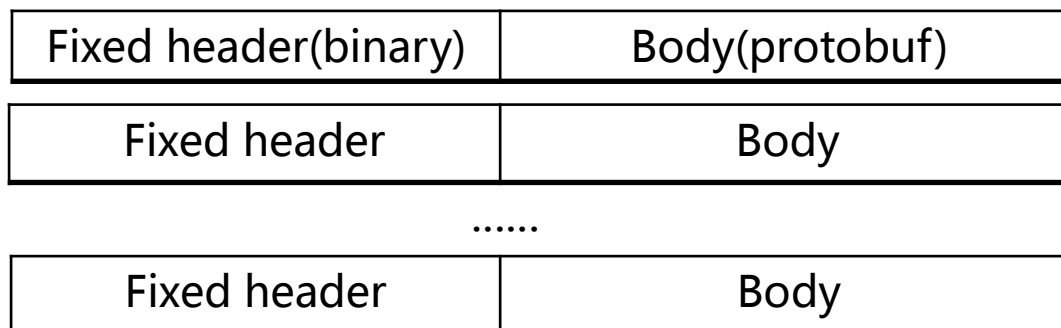
□ Format

✓ Name

$\{\text{prefix}\}_{\text{serverid}}_{\text{binlogno}}.bin$

```
-rw-r--r-- 1 root root 1180448884 Mar  9 23:33 dts_000538_79031_000543.bin
-rw-r--r-- 1 root root 1181063750 Mar  9 23:40 dts_000539_79031_000544.bin
-rw-r--r-- 1 root root 1181937422 Mar  9 23:46 dts_000540_79031_000545.bin
-rw-r--r-- 1 root root 1179719811 Mar  9 23:53 dts_000541_79031_000546.bin
-rw-r--r-- 1 root root 1182215632 Mar 10 00:00 dts_000542_79031_000547.bin
-rw-r--r-- 1 root root 1181553800 Mar 10 00:07 dts_000543_79031_000548.bin
-rw-r--r-- 1 root root 1181678697 Mar 10 00:13 dts_000544_79031_000549.bin
-rw-r--r-- 1 root root 1181293115 Mar 10 00:19 dts_000545_79031_000550.bin
-rw-r--r-- 1 root root 1181924295 Mar 10 00:27 dts_000546_79031_000551.bin
```

✓ Content (continuous)



Performance

□ Non Real Time

Mysql TPS: 2.6w+

	total (s)	TPS
Parse	233	42,735
Consume	123	81,300

□ Real Time

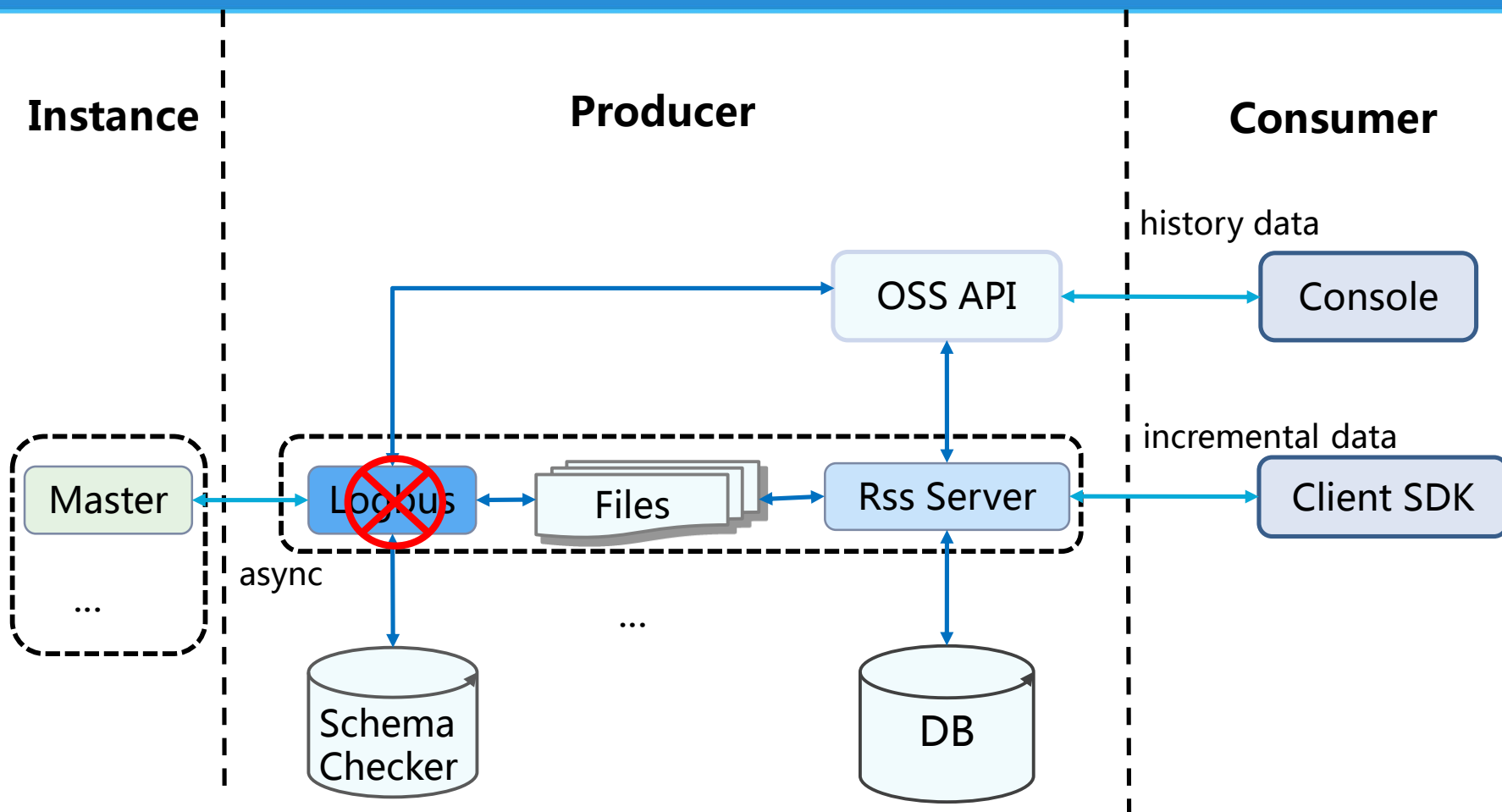
Mysql TPS: 2.6w+

	total (s)	TPS
Parse	379	26,385
Consume	379	26,385

Agenda

DTS High Availability

Architecture



Logbus Crash

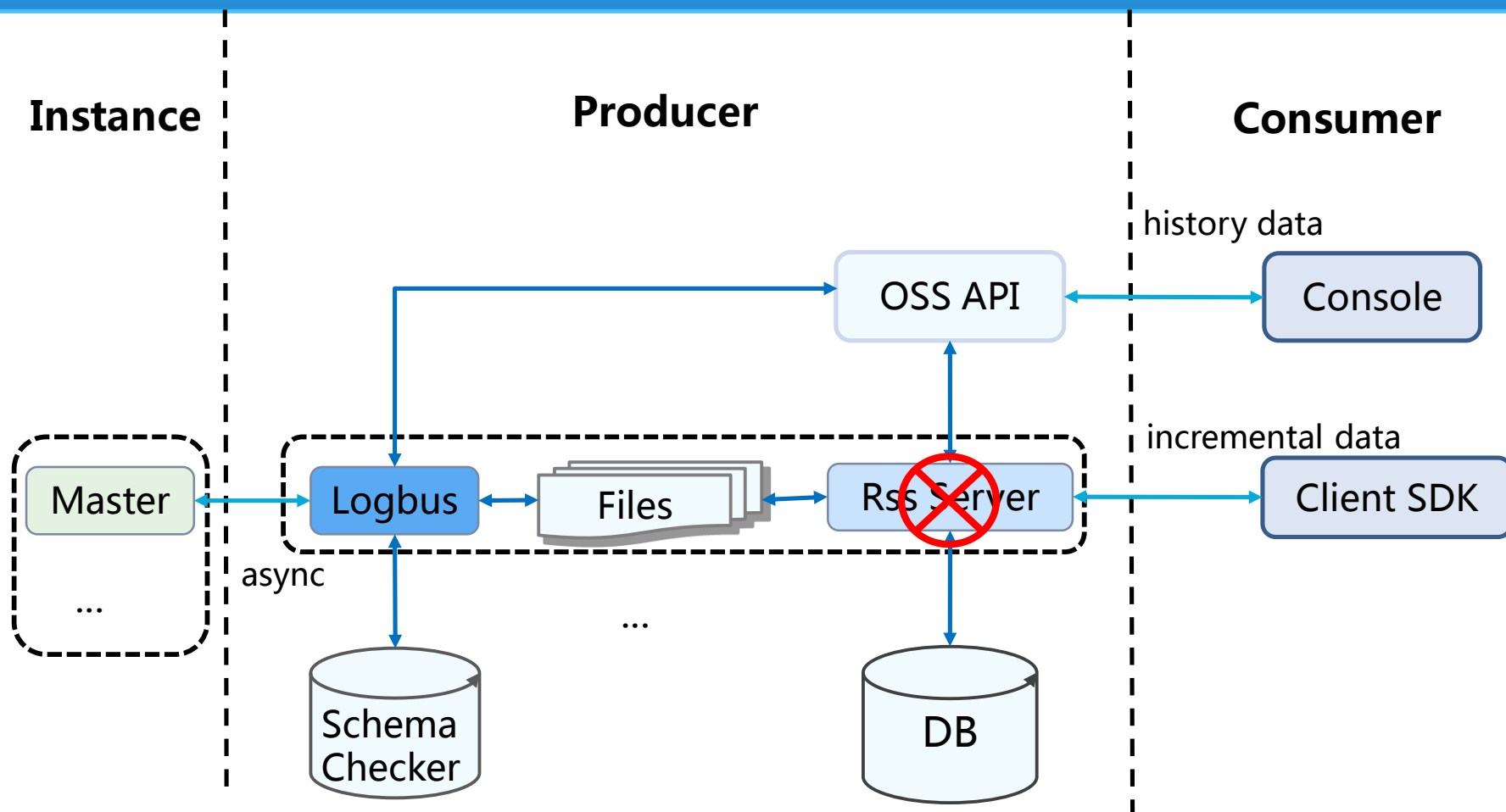
□ Recovery Replication

- ✓ Reload master info
- ✓ Reload gtid list
- ✓ Reload global configure info
- ✓ Truncate incomplete transaction in binlog

□ Recovery Parser

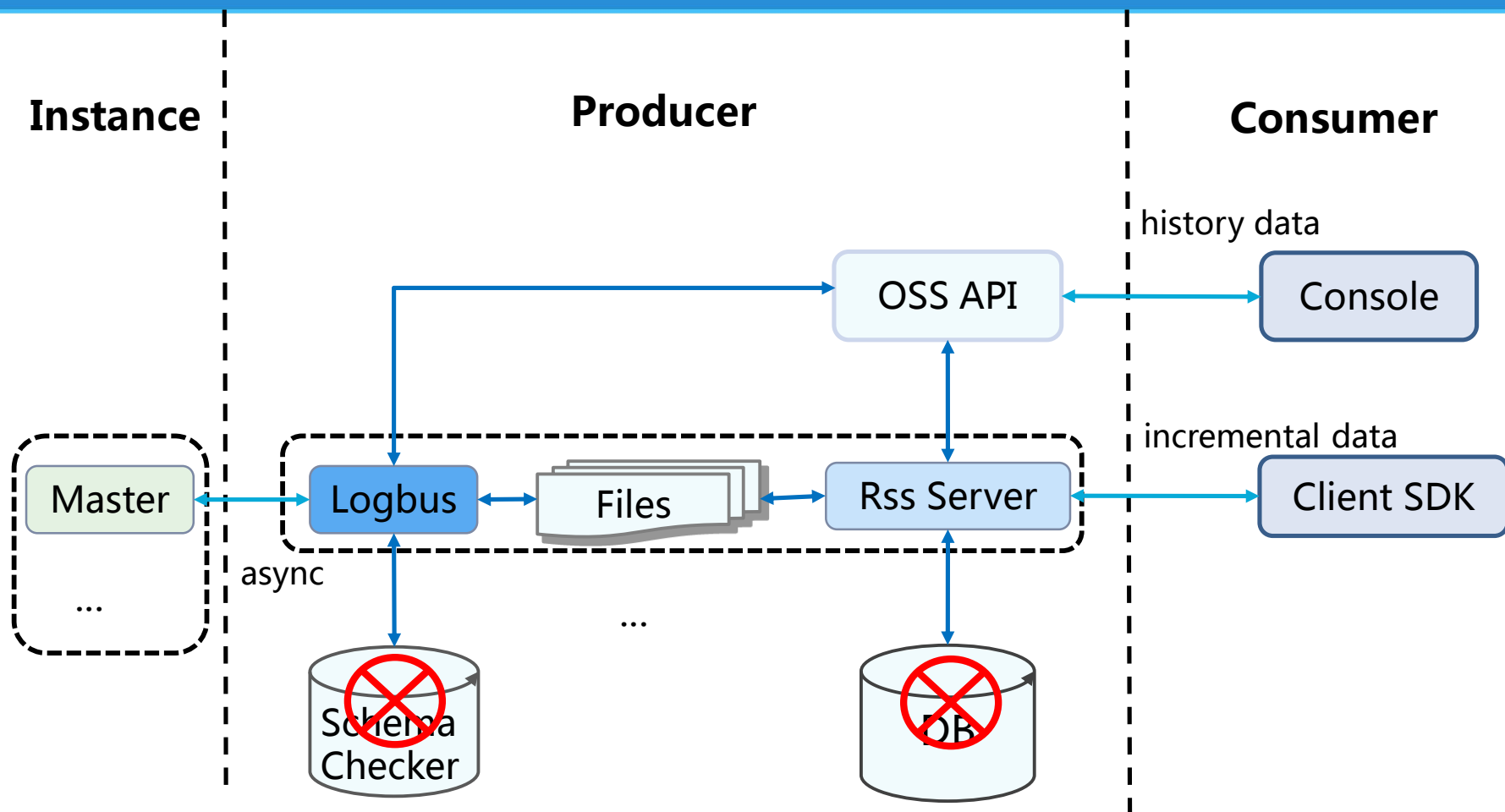
- ✓ Reload schema checker info
- ✓ Check integrality of dts files
- ✓ Truncate incomplete message in dts file
- ✓ Reload the last gtid in dts file

Architecture



- ✓ Reload user channel info
- ✓ Reload consume checkpoint

Architecture



✓ CDB instance HA

关系型数据库

MySQL

- 实例列表
- 任务列表
- 参数模板
- 回收站
- 数据传输
- 虚拟IP
- 数据订阅**
- 密钥管理服务

SQLServer

TDSQL

PostgreSQL

独享集群数据库

< 返回 | name-326atdp0

订阅配置

订阅数据

2017-01-10

服务ID	库名	表名	变更类型	位点	时间戳	操作
10.66.183.190:3306		--	ddl	93103@3@231	2017-01-10 21:30:20	查看数据详情
10.66.183.190:3306		--	ddl	93103@3@410	2017-01-10 21:30:20	查看数据详情
10.66.183.190:3306	test	--	ddl	93103@3@529	2017-01-10 21:38:44	查看数据详情
10.66.183.190:3306	test	dts_test	insert	93103@3@839	2017-01-10 21:39:40	查看数据详情
10.66.183.190:3306	test	dts_test	insert	93103@3@839	2017-01-10 21:39:40	查看数据详情
10.66.183.190:3306	test	dts_test	insert	93103@3@839	2017-01-10 21:39:40	查看数据详情
10.66.183.190:3306	test	dts_test	update	93103@3@1112	2017-01-10 21:40:10	查看数据详情
10.66.183.190:3306	test	dts_test	delete	93103@3@1366	2017-01-10 21:40:29	查看数据详情

查看数据详情

×

服务ID 10.66.183.190:3306

字段名称	字段类型	字段编码	前镜像	后镜像
id	INT32	latin1	2	2
data	BLOB	utf8	test_update	just test

确定

Partner



Q&A





Thank You

CONTACT US

- WeChat Group

