# Flink Forward China 2018

公司：去哪儿网

职位：实时计算负责人

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FLINK FORWARD

# Apache Flink 和 Elasticsearch 助力实时 OLAP 平台

## Apache Flink and Elasticsearch power realtime OLAP platform

&

# 自我介绍

About me

2016 加入 Qunar

主要负责:

- ELK
- Elasticsearch
- Kafka
- Flink 实时计算平台

Joined Qunar in 2016

Focus on:

- ELK
- Elasticsearch
- Kafka
- Flink platform

# 目录

## Outline

1. 起因
2. 如何写入 ES
3. Flink 和 ES 构建实时 OLAP 平台
4. 实时网络拓扑

1. Motivation
2. How to sink to ES
3. Flink & ES OLAP platform
4. Realtime network topology

# 1 Motivation

# Motivation

Log Kafka Logstash Elasticsearch Kibana

# Motivation

Logstash

- 上手容易, 易编程
  Easy to start
- 灵活
  Flexible
- 伸缩性
  Scalable

Elasticsearch

- 基于 Lucene
  Based on Lucene
- 分片机制
  Sharding
- 高可用
  High available
- Kibana
  Kibana

# Motivation

Logstash < 5.0

- 可靠性 ✗
  High available
- 性能 ✗
  Performance
- 复杂需求 ✗
  Complex needs

# Motivation

- 可靠性

High available

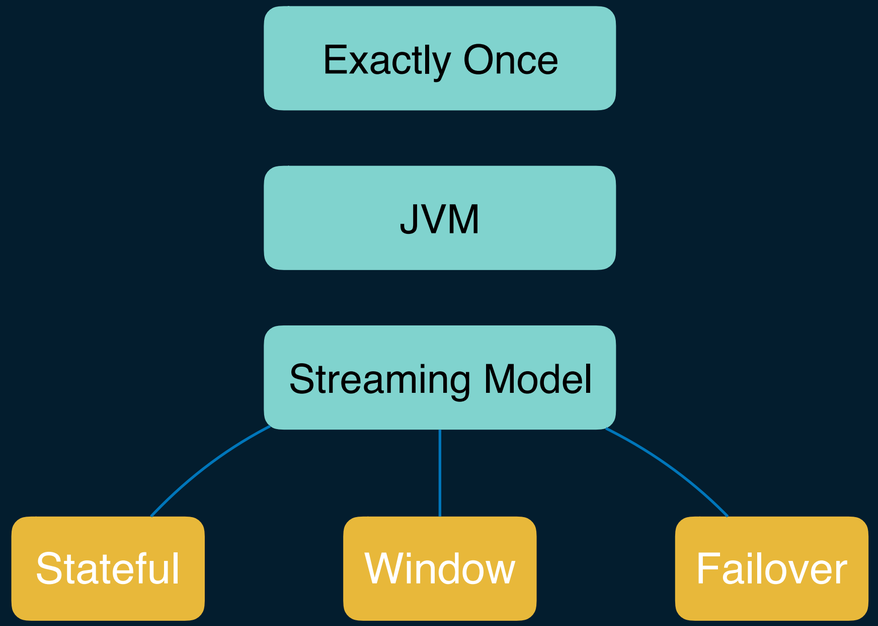
- 性能

Performance

- 复杂需求

Complex needs

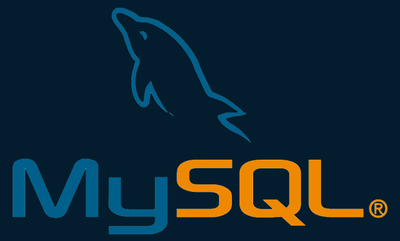
Flink



# Motivation

Flink



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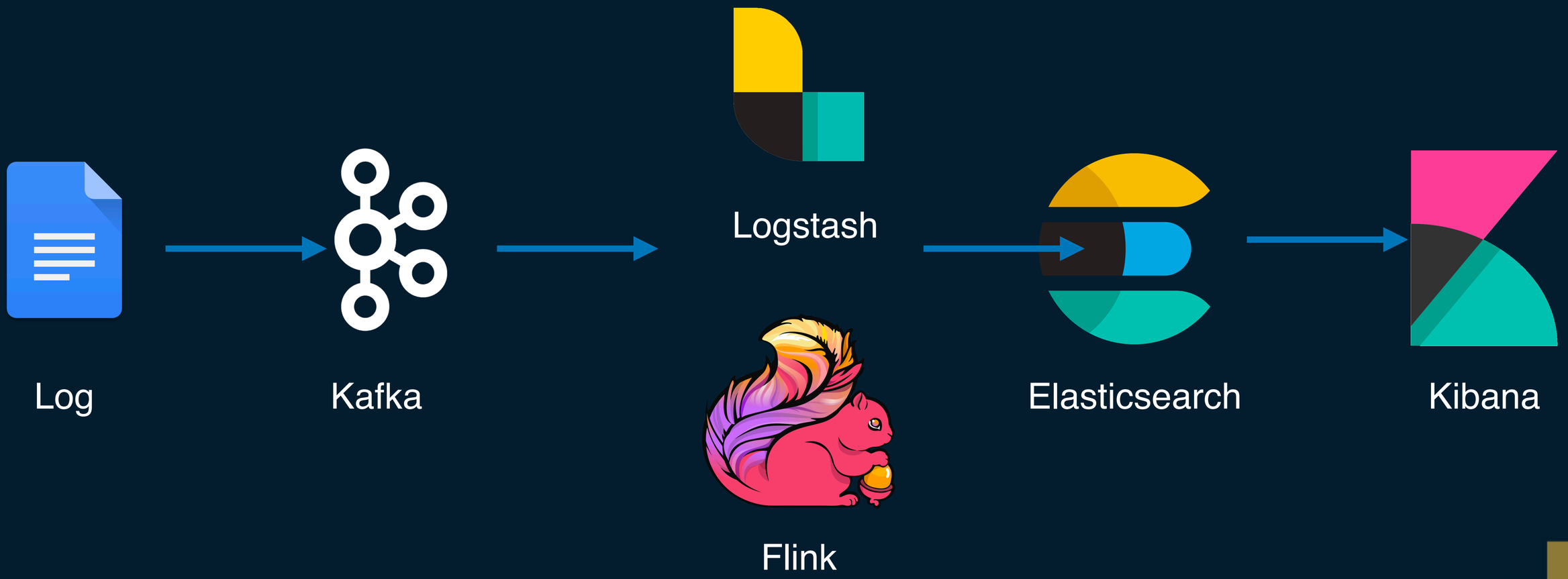


# 2 How to sink to ES?

# How to sink to ES

```scala
val input: DataStream[String] = ...

val config = new java.util.HashMap[String, String]
config.put("cluster.name", "my-cluster-name")
// This instructs the sink to emit after every element, otherwise they would be buffered
config.put("bulk.flush.max.actions", "1")

val transportAddresses = new java.util.ArrayList[InetSocketAddress]
transportAddresses.add(new InetSocketAddress(InetAddress.getByName("127.0.0.1"), 9300))
transportAddresses.add(new InetSocketAddress(InetAddress.getByName("10.2.3.1"), 9300))

input.addSink(new ElasticsearchSink(config, transportAddresses, new ElasticsearchSinkFunction[String] {
  def createIndexRequest(element: String): IndexRequest = {
    val json = new java.util.HashMap[String, String]
    json.put("data", element)

    return Requests.indexRequest()
            .index("my-index")
            .type("my-type")
            .source(json)
  }
}))
```

Config

ES address

ElasticsearchSinkFunction

https://ci.apache.org/projects/flink/flink-docs-release-1.7/dev/connectors/elasticsearch.html

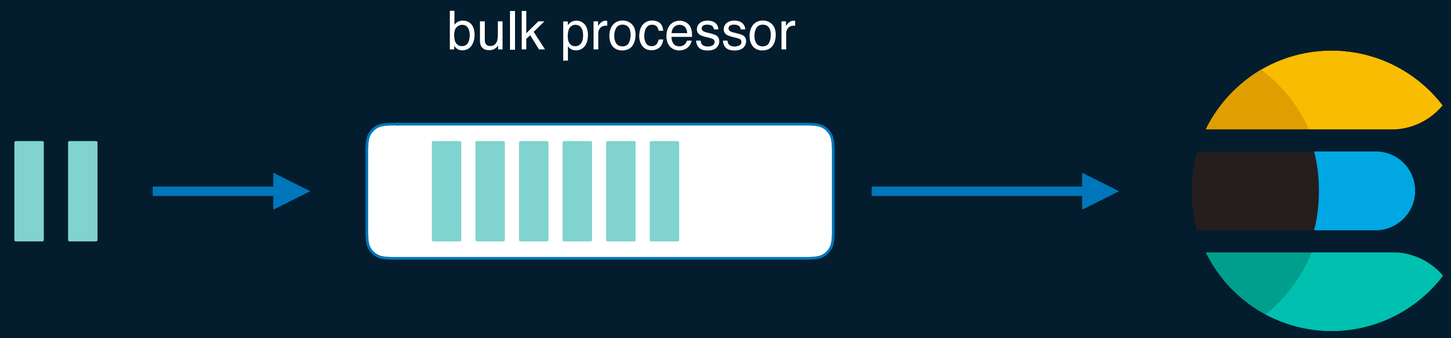
# How to sink to ES

Config

bulk.flush.max.actions

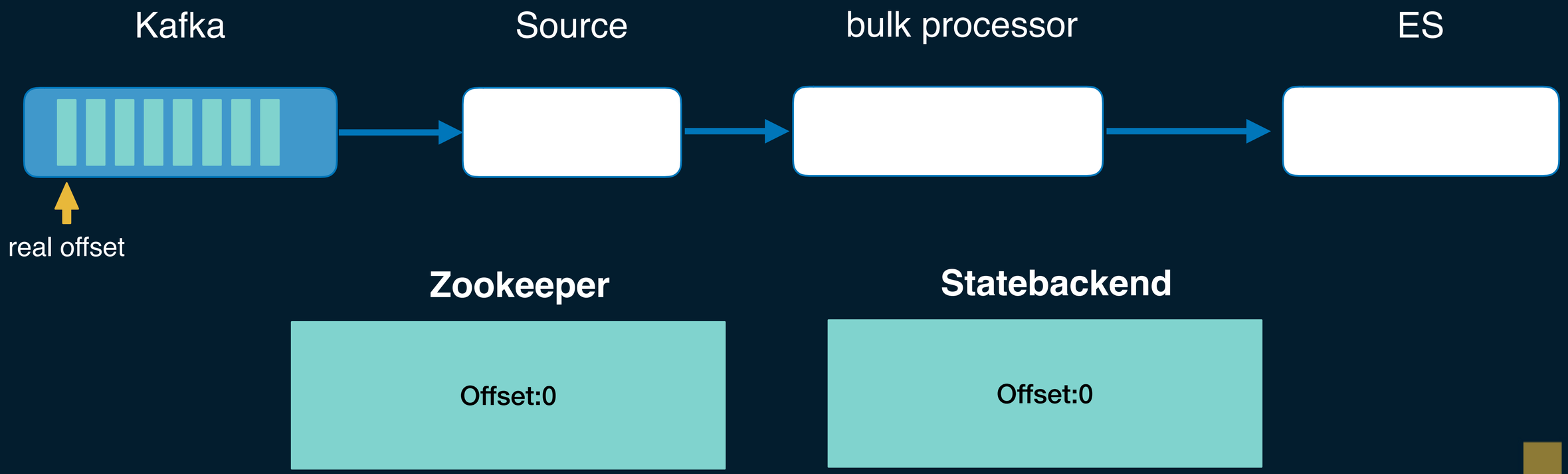
bulk.flush.max.size.mb

bulk.flush.interval.ms



# How to sink to ES

Enable checkpoint: At least once



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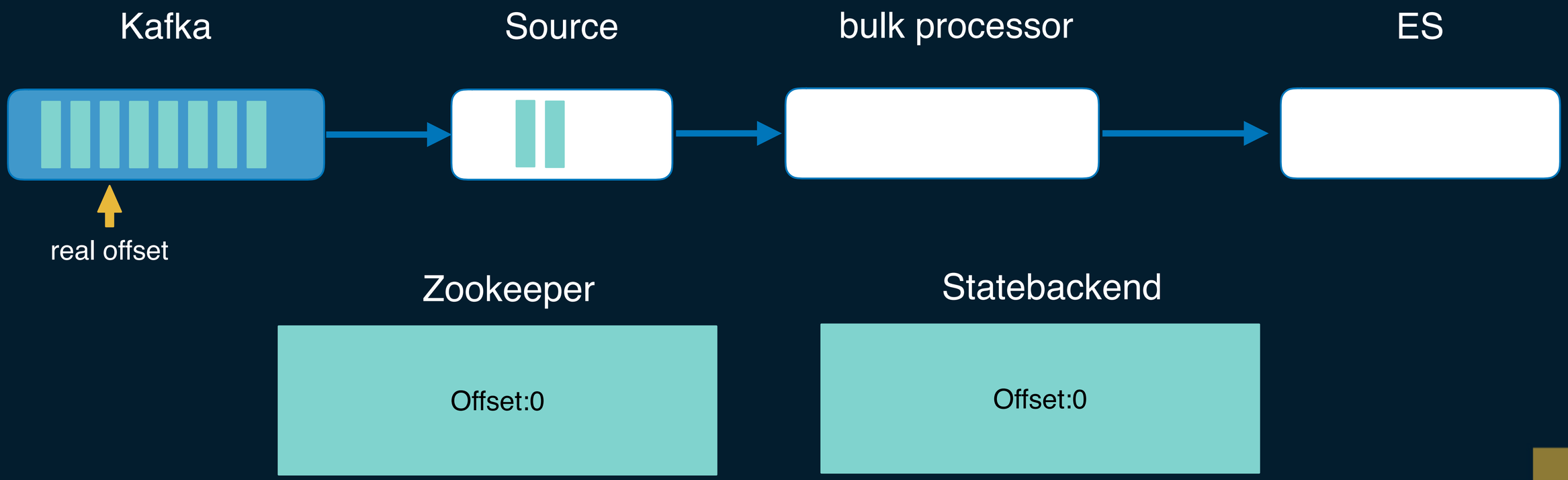

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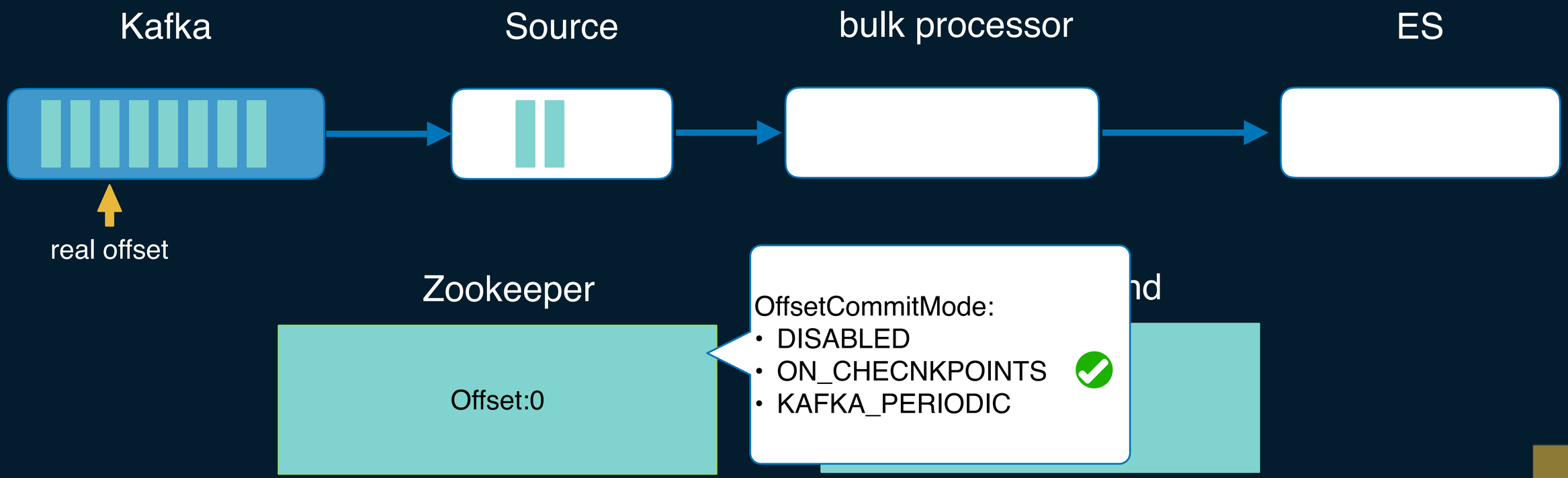

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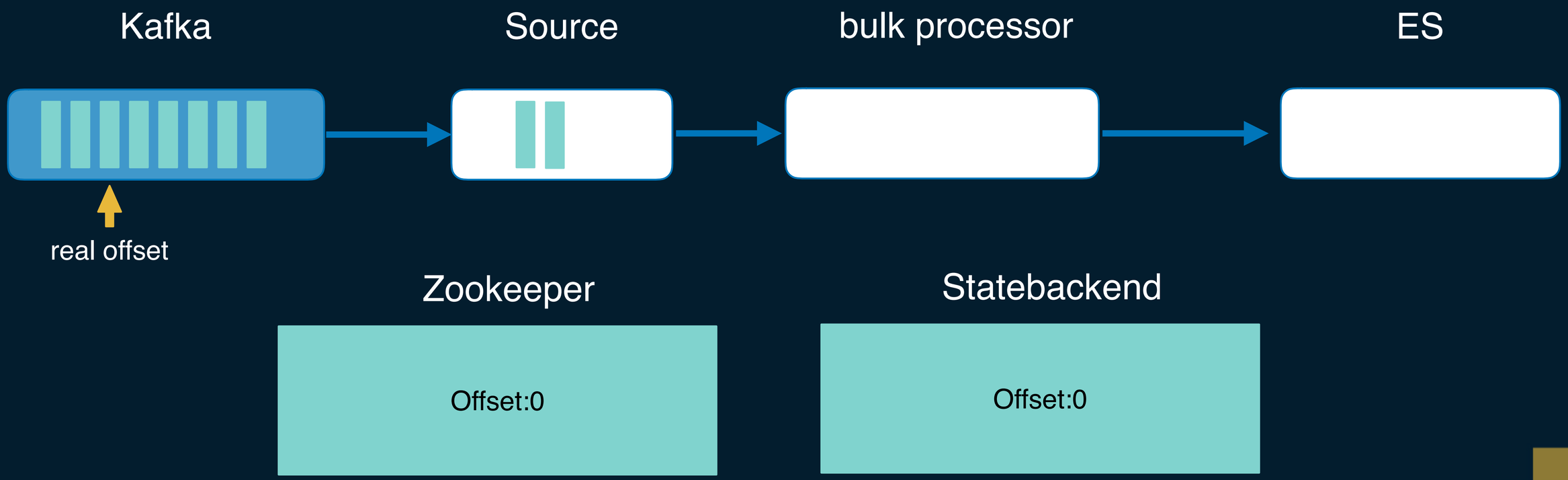

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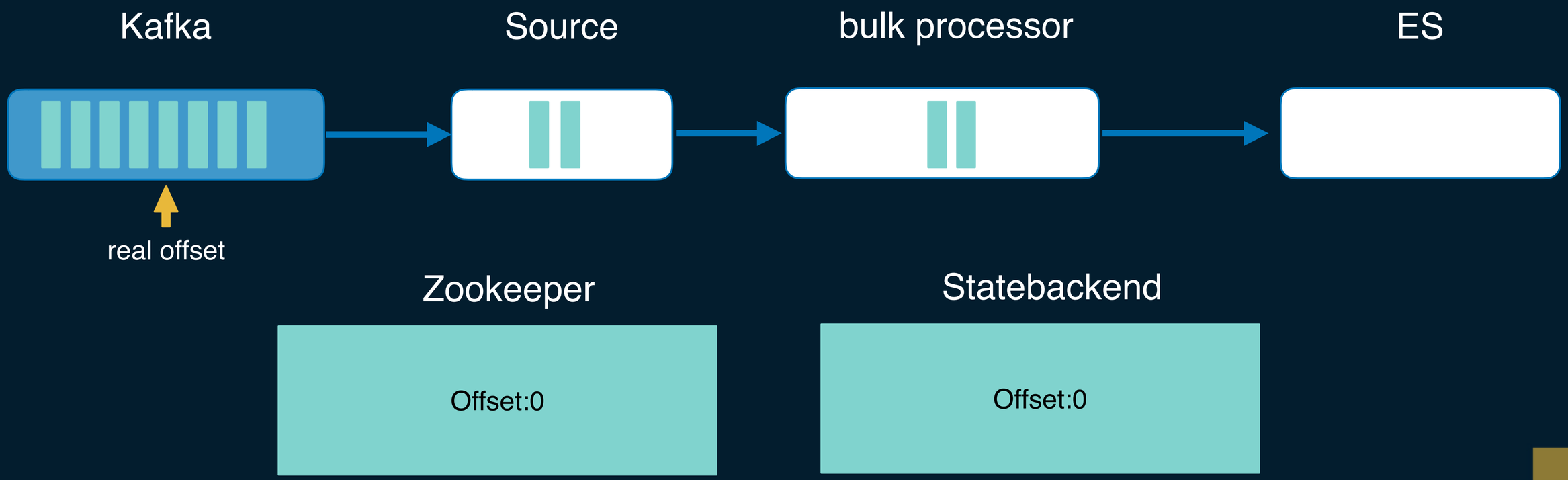

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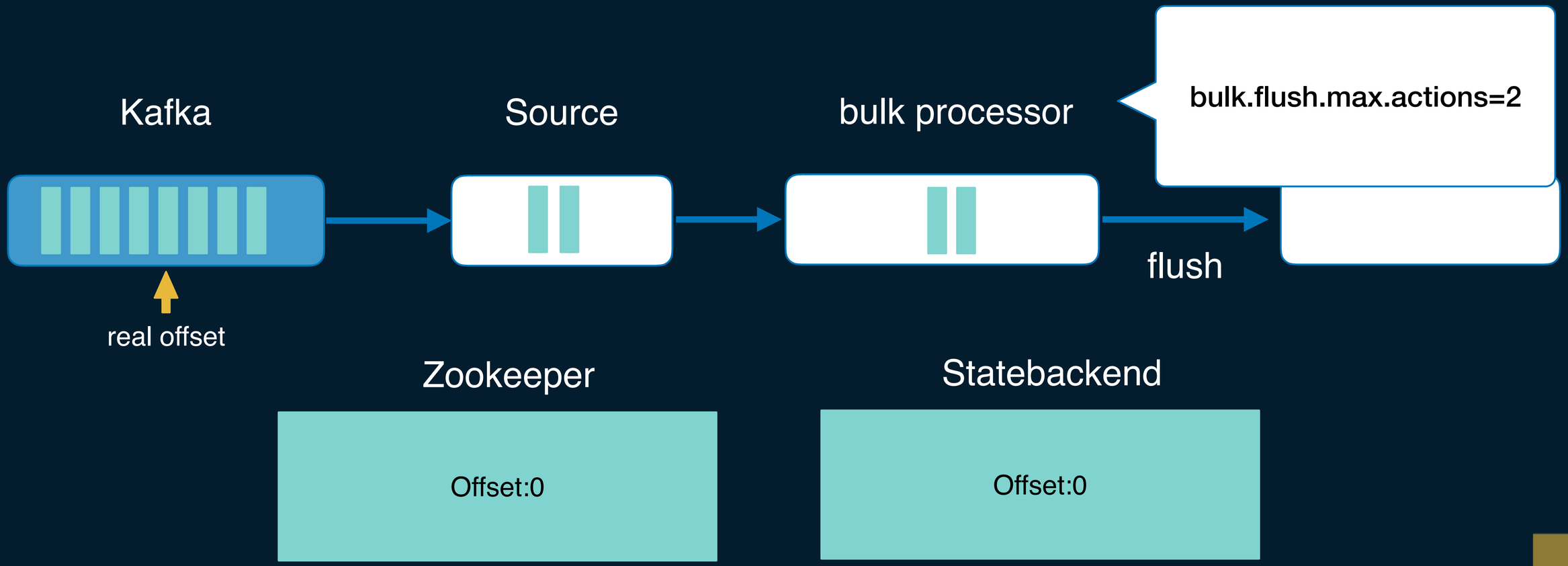

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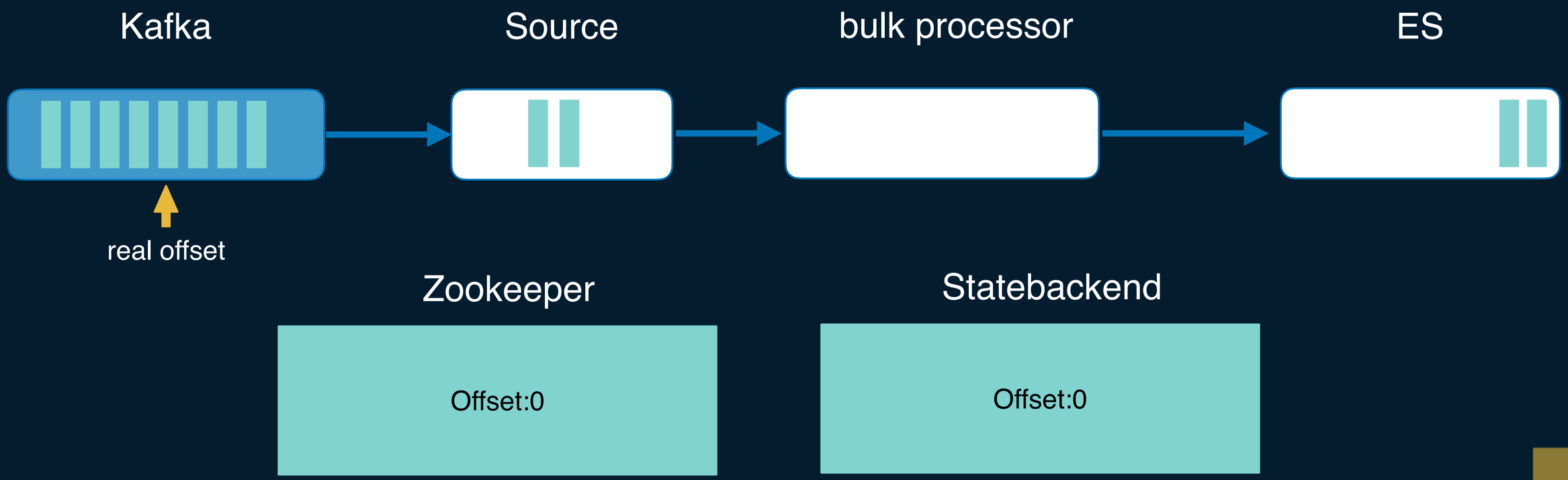

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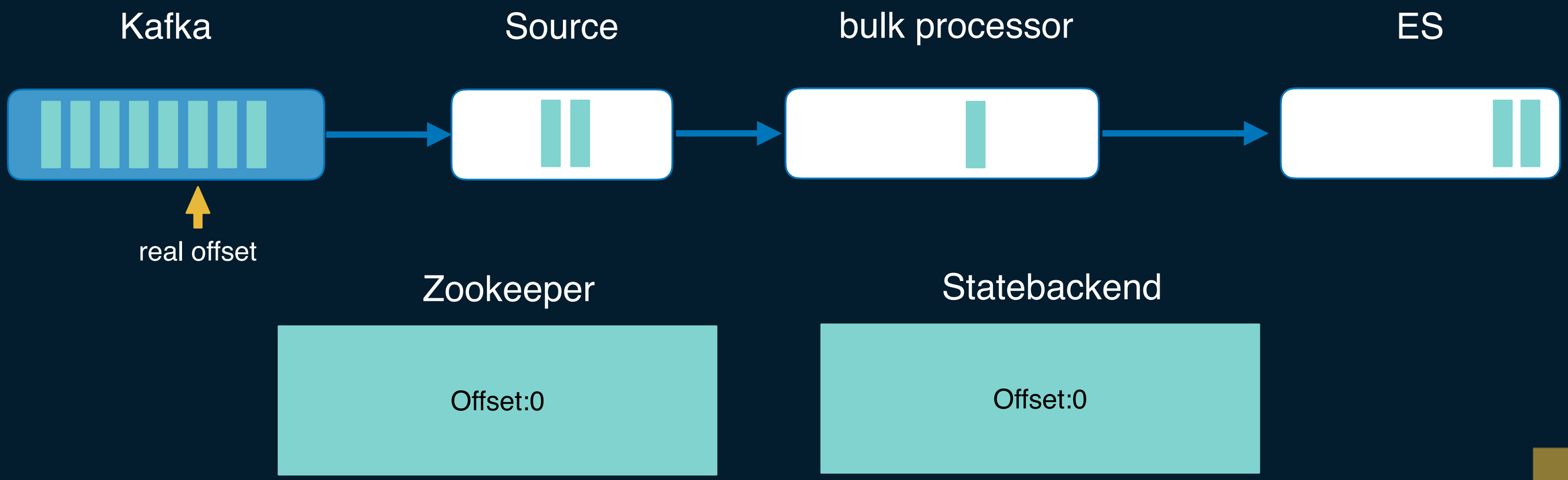

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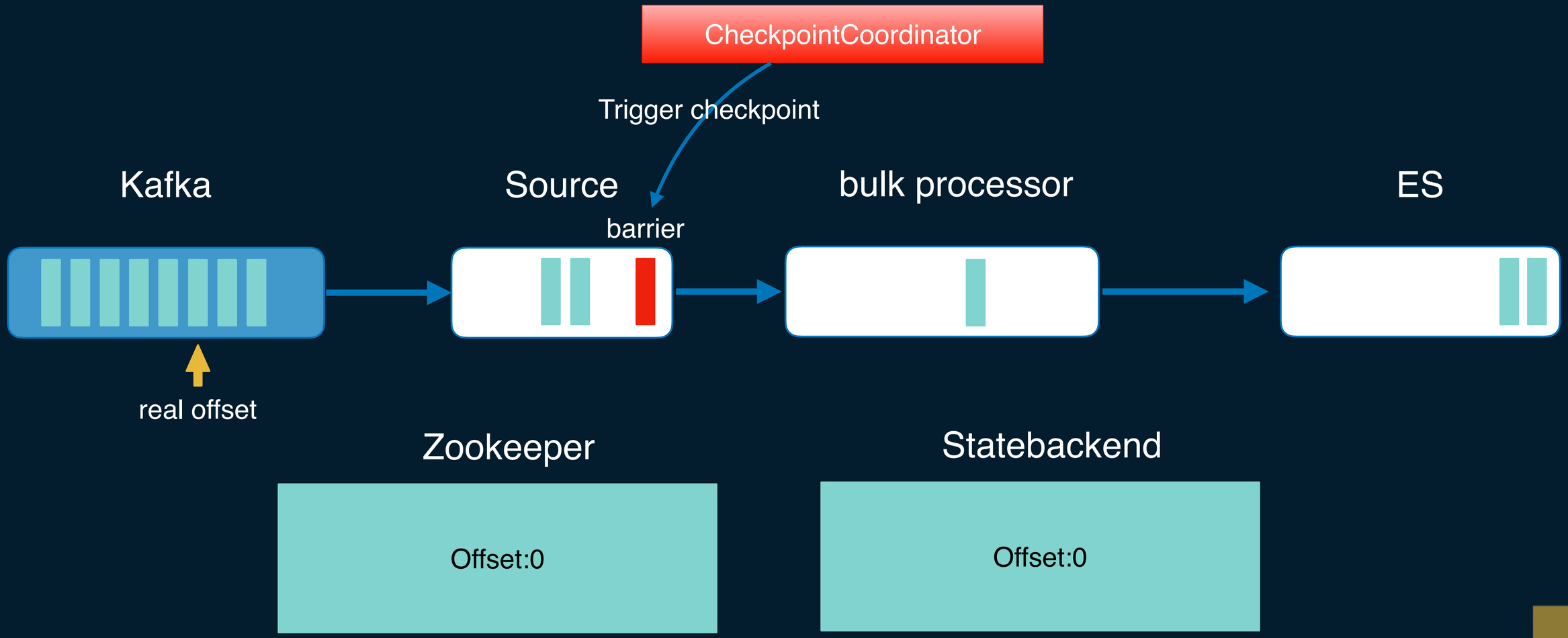

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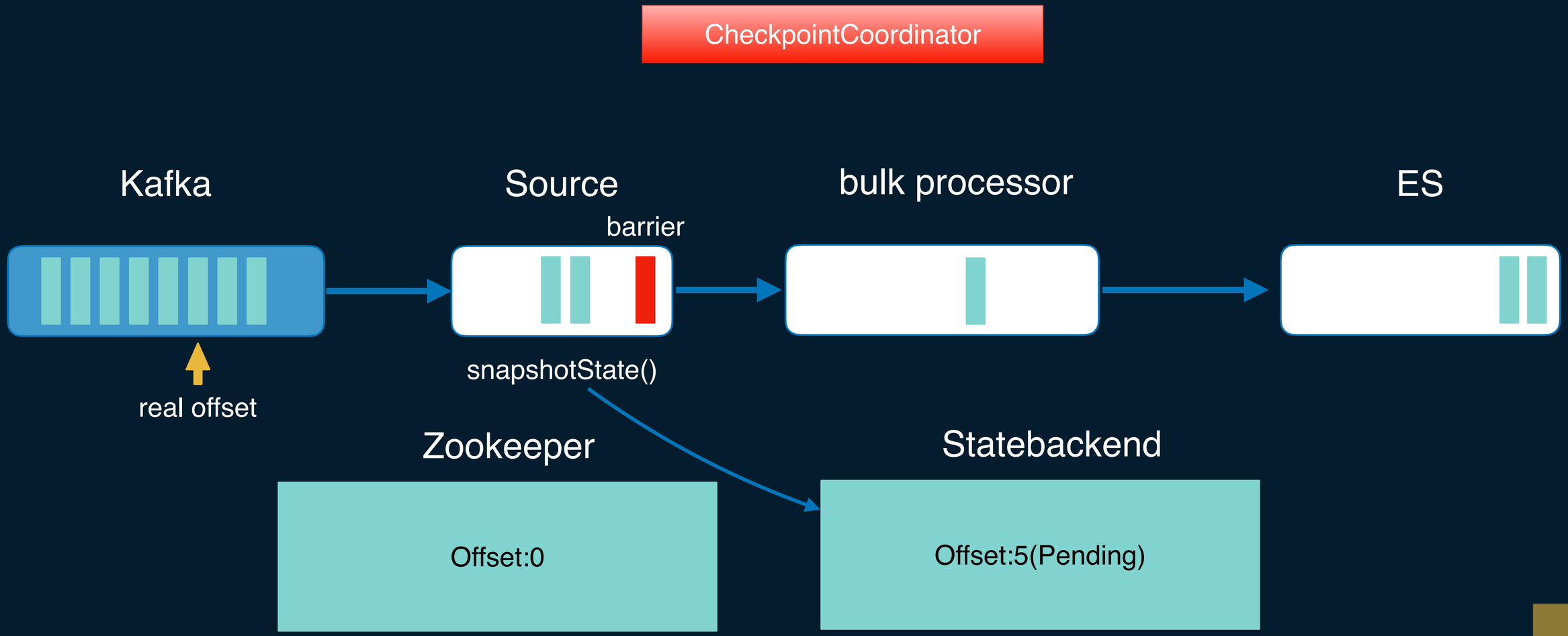

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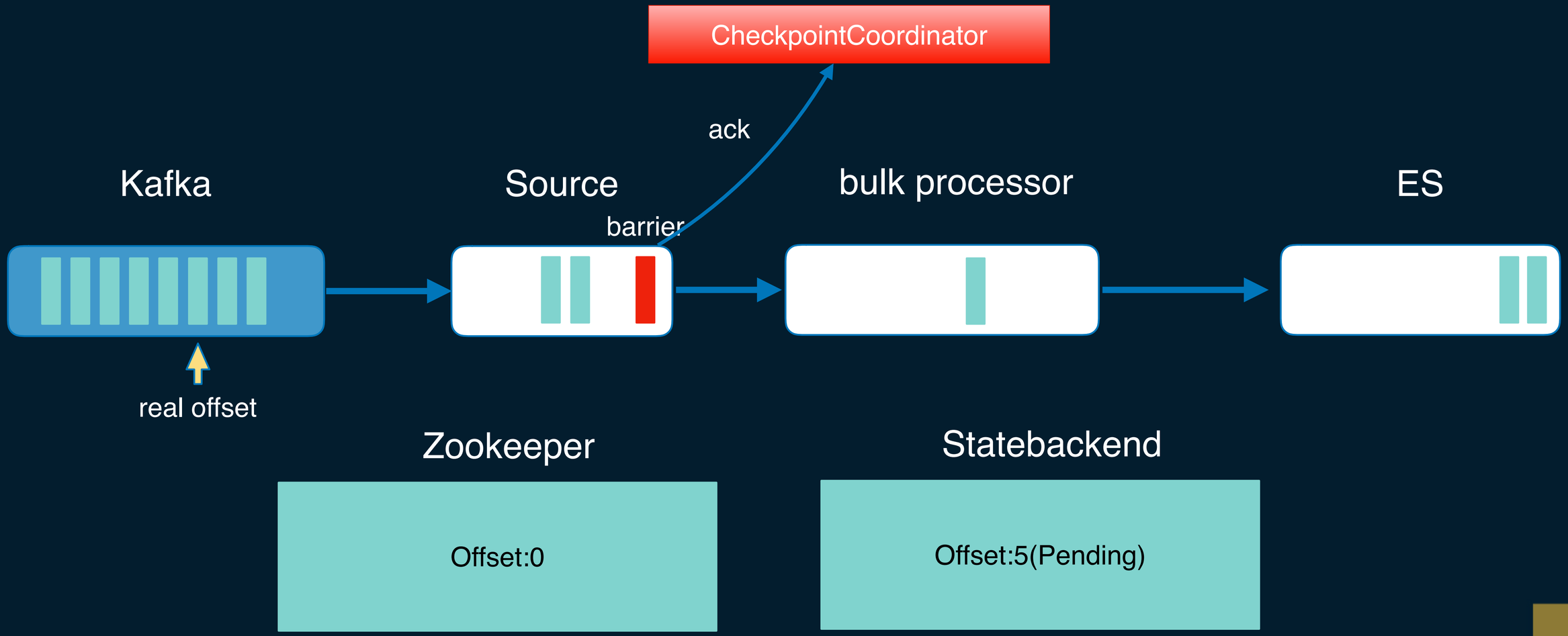

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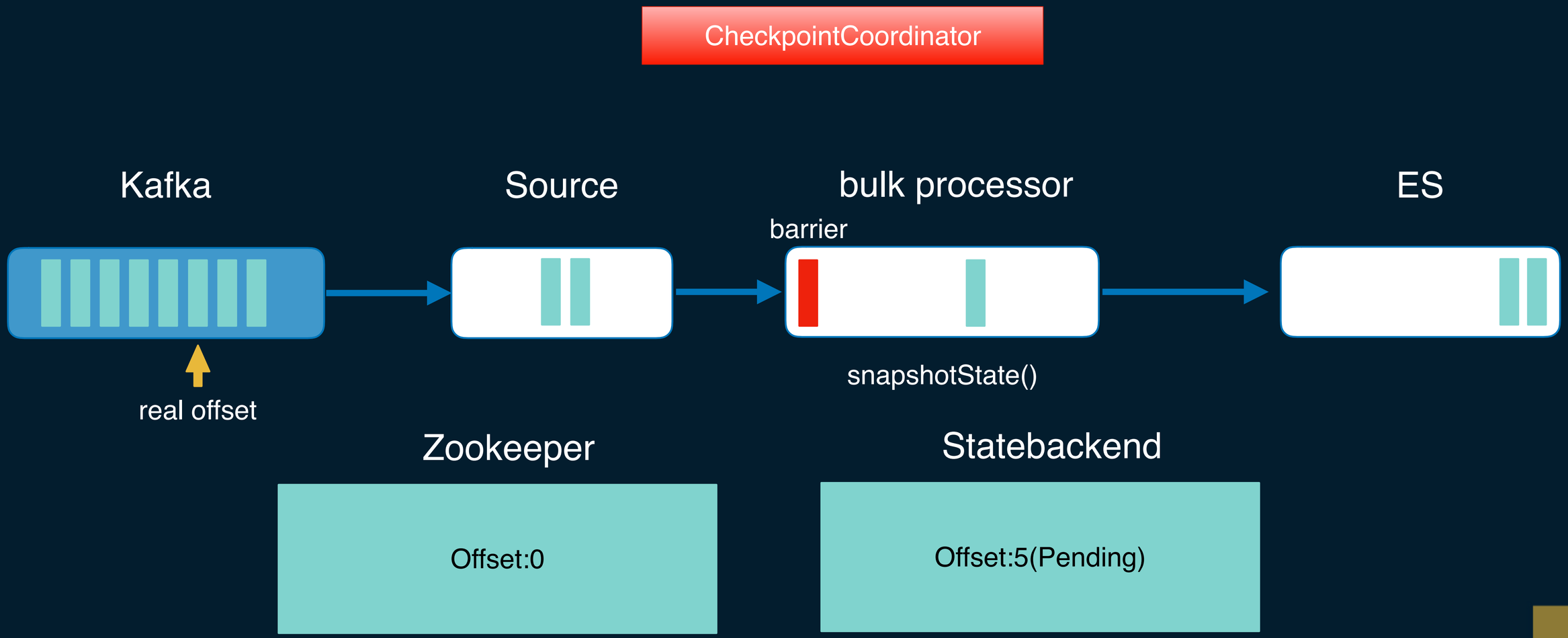

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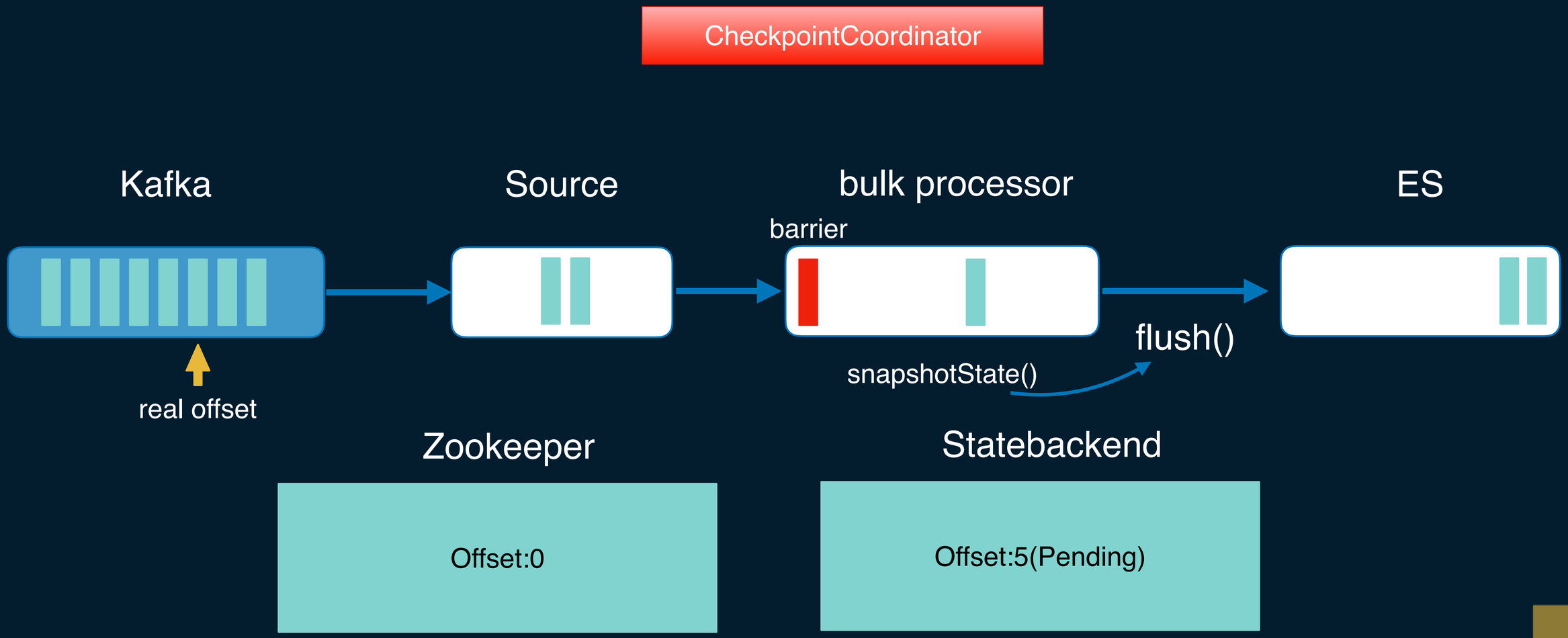

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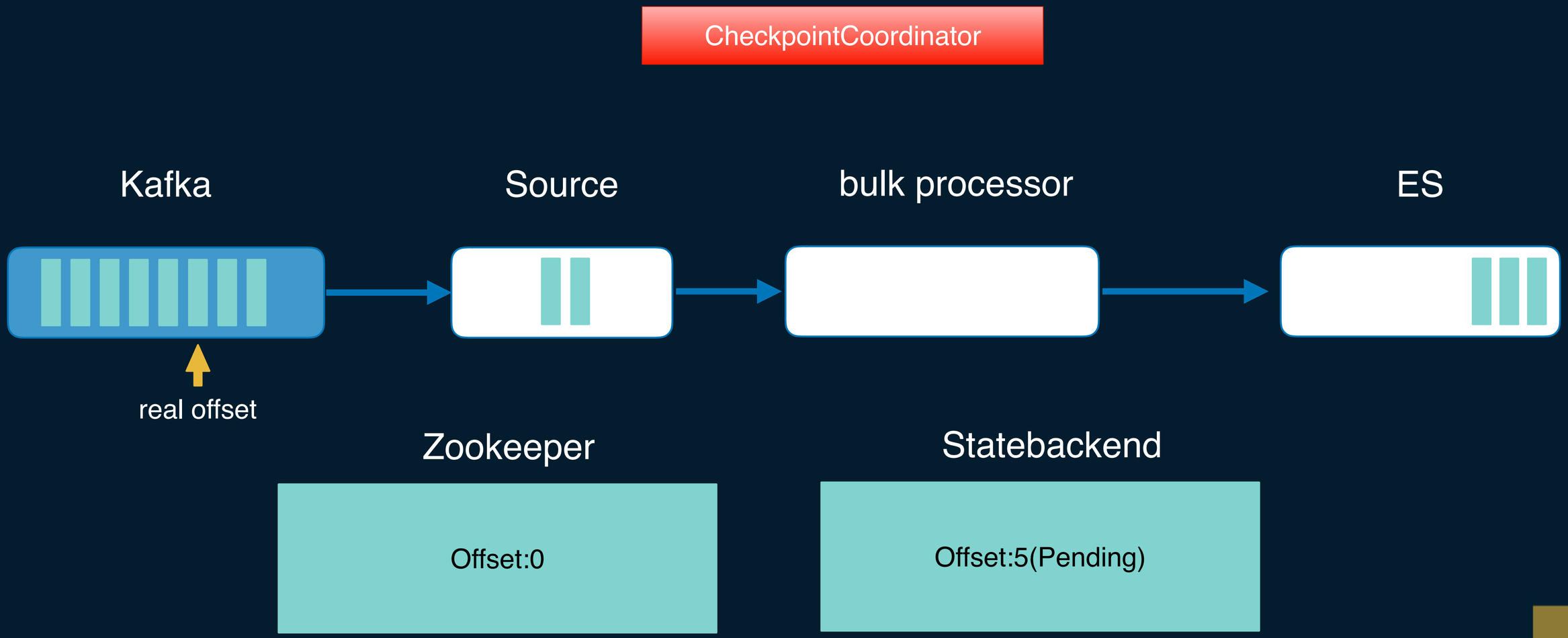

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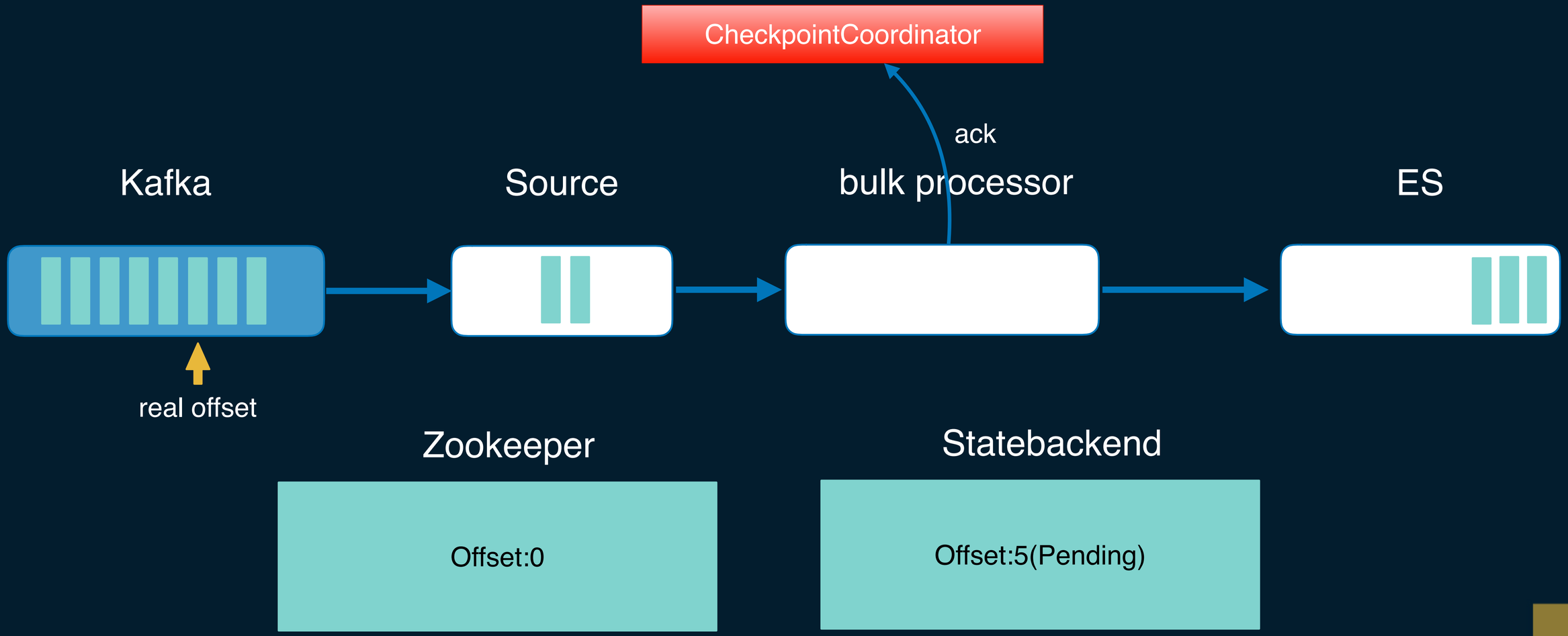

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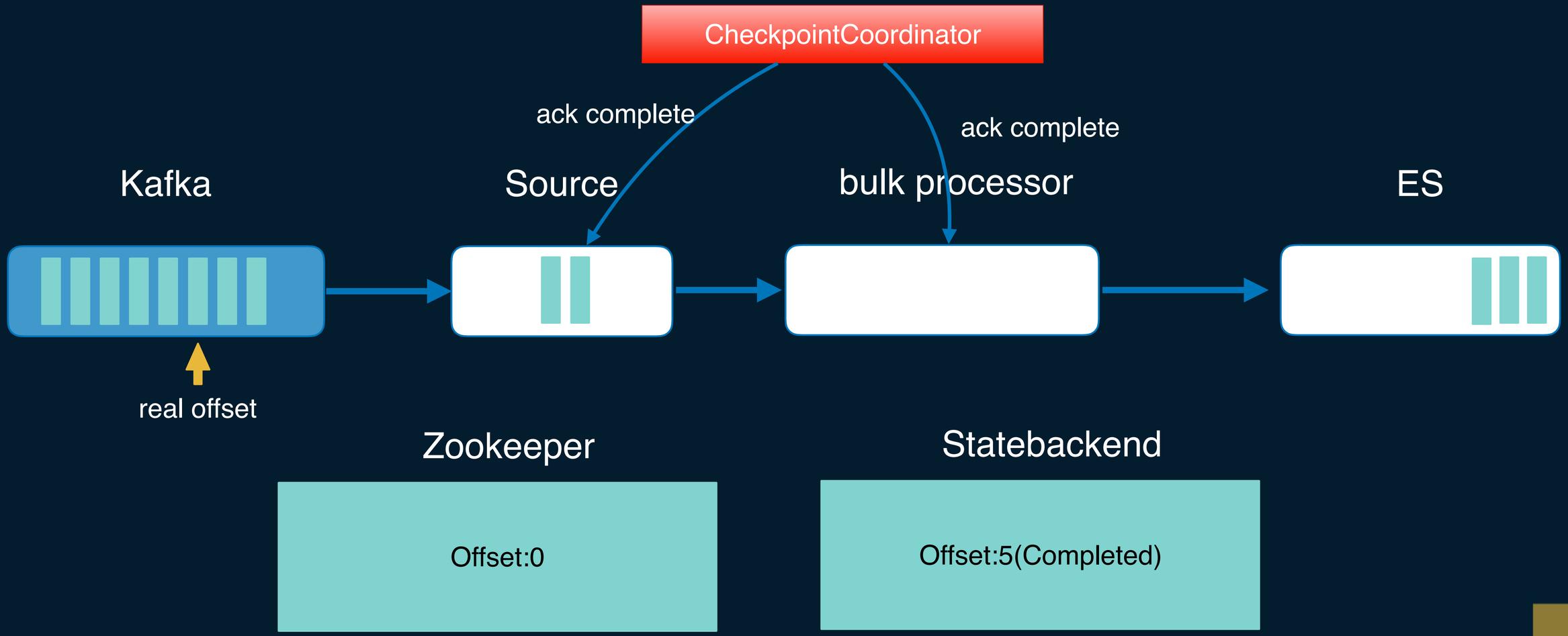

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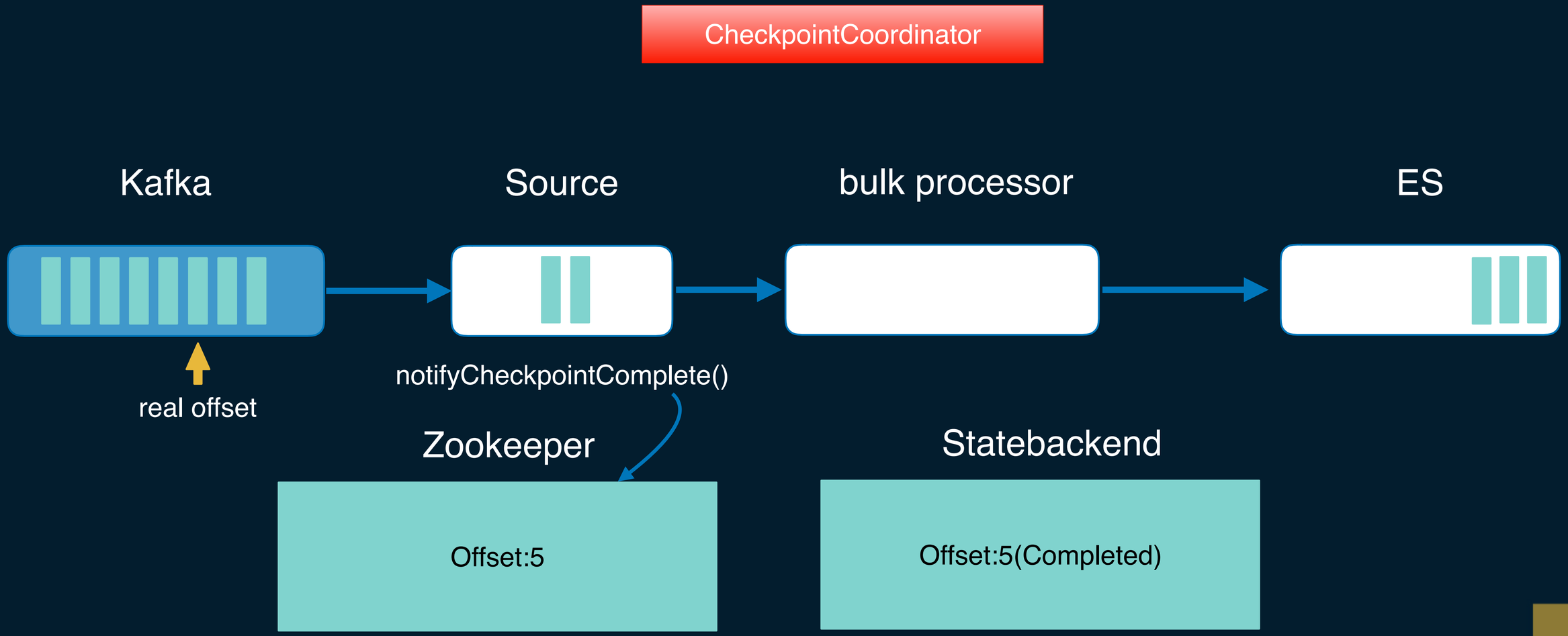


# 3 Flink & ES OLAP environment

# Flink & ES OLAP environment

Service

STORM

APACHE Spark™

Elasticsearch

Logstash

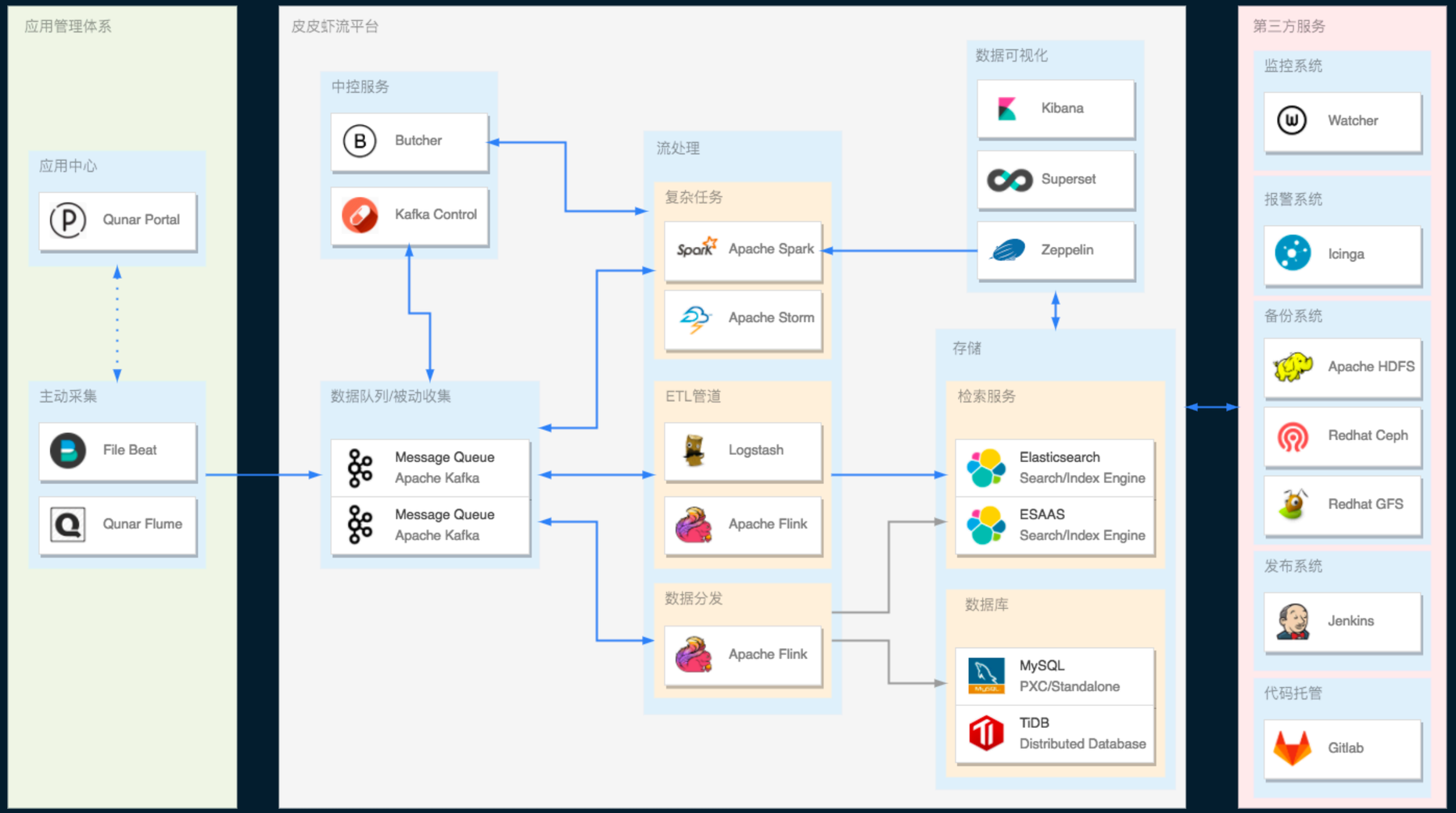
Kibana

Kafka

Binlog

其他组件…

# Flink & ES OLAP environment



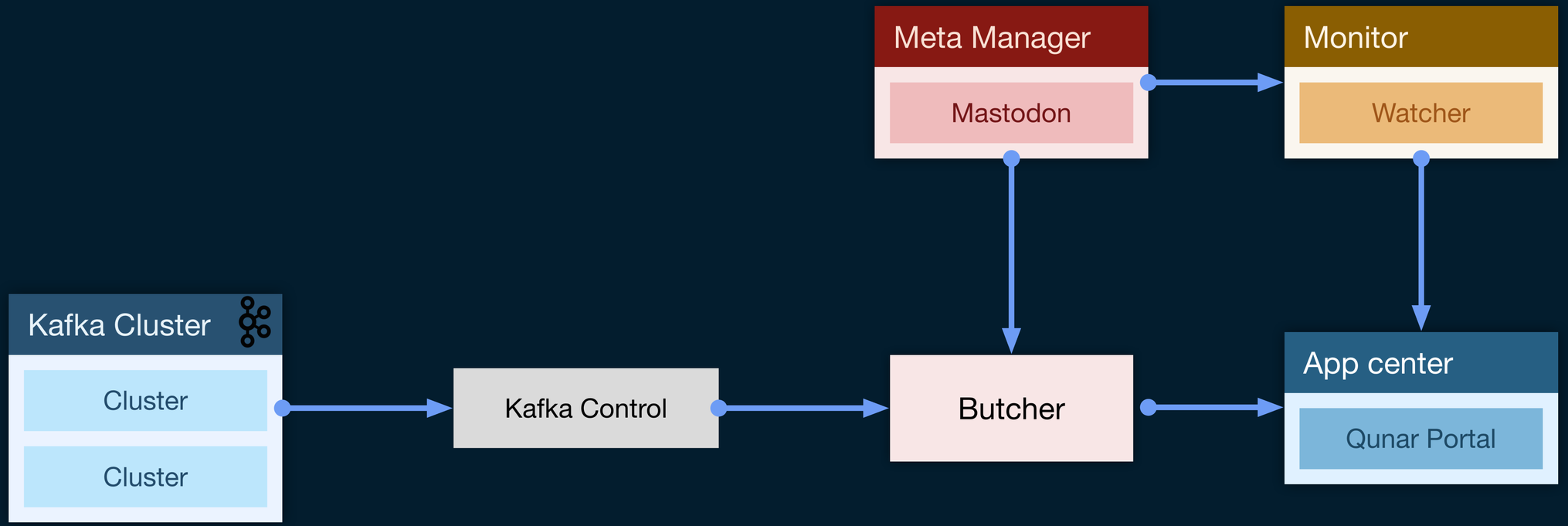
# Flink & ES OLAP environment

Kafka Flink Elasticsearch

Interface Debug Monitor

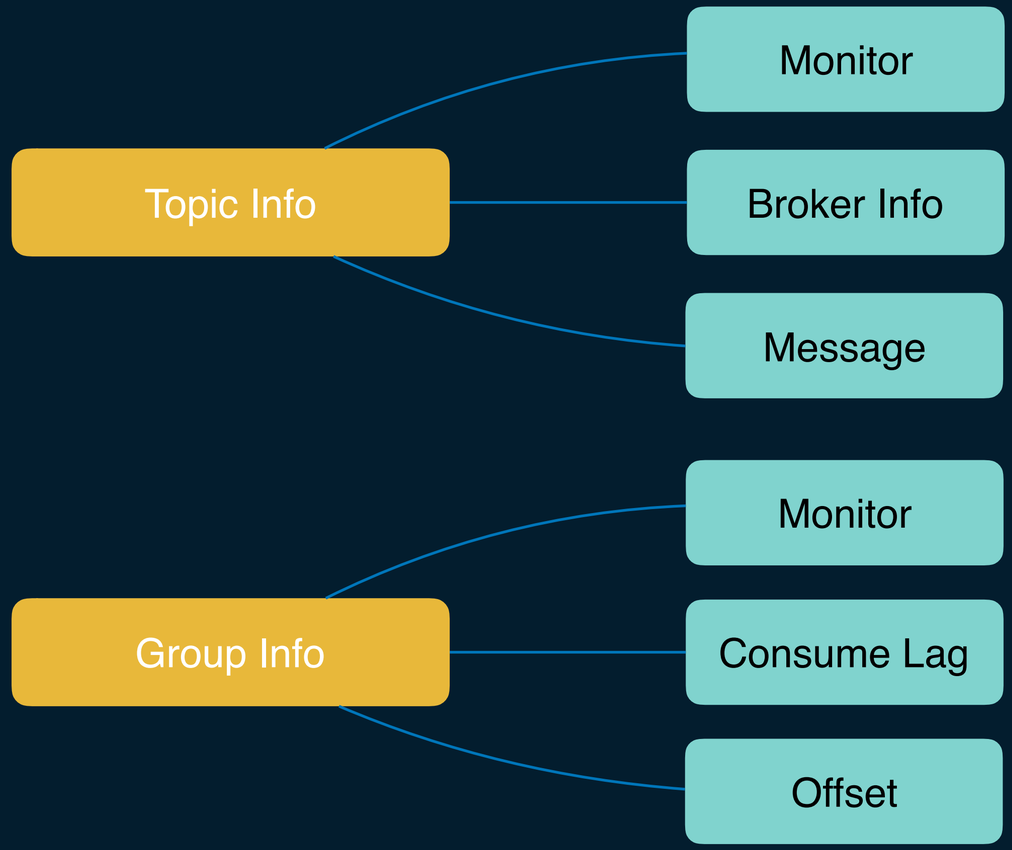
# Flink & ES OLAP environment

Interface: Kafka



# Flink & ES OLAP environment

Kafka



# Flink & ES OLAP environment

**Kafka Topic 管理** Wiki　　申请创建 Topic　绑定已有 Topic

| Topic | 所在 Kafka 集群 | 服务状态 | partition数量 | 副本数 | 5min内速率(条/s) | 过期时间/h | 备注 | 创建时间 | 操作 |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | 服务中 | 6 | 2 | 271.79 | 3 | test | 2018-07-18 14:31:49 | 监控 \| Logsize \| 接入点 \| 最近消息 \| 指定消息 |
| [illegible] | [illegible] | 服务中 | 4 | 2 | 6.94 | 3 | test | 2018-11-15 17:55:12 | 监控 \| Logsize \| 接入点 \| 最近消息 \| 指定消息 |
| [illegible] | [illegible] | 服务中 | 6 | 2 | 276.59 | 12 | 增加 | 2018-11-28 10:59:27 | 监控 \| Logsize \| 接入点 \| 最近消息 \| 指定消息 |

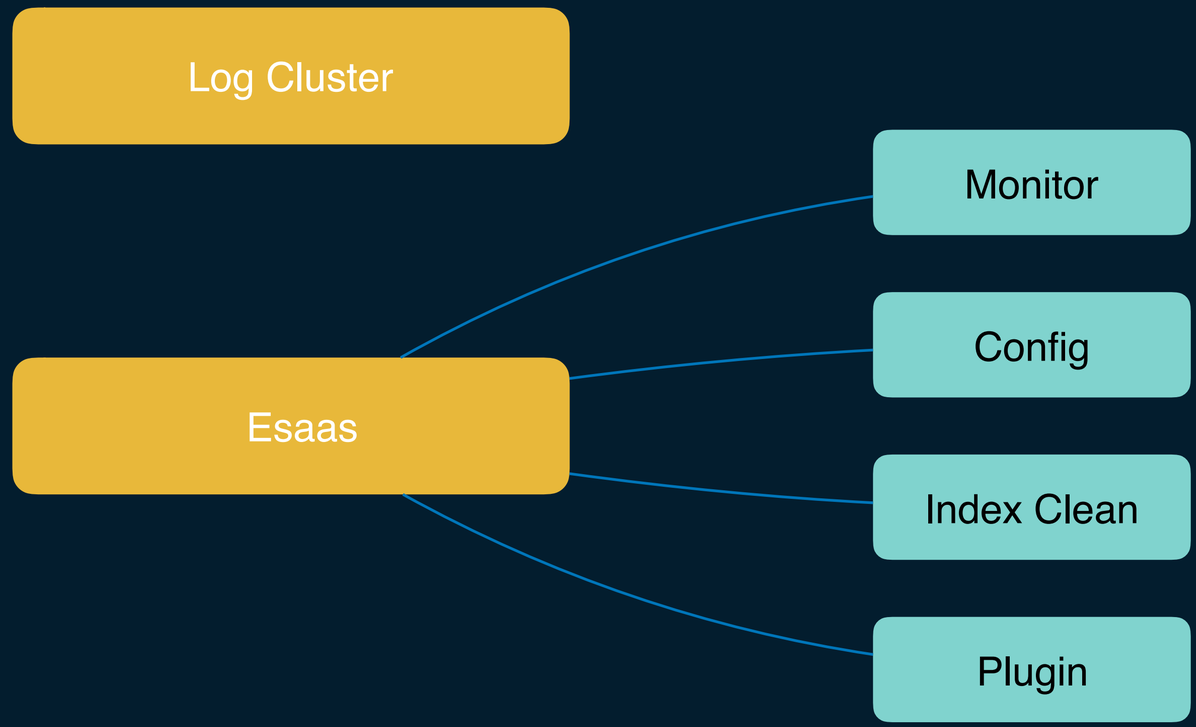
**Kafka Group 管理**

| Topic | 所在 Kafka 集群 | 类型 | Group | 监控 | 操作 |
|---|---|---|---|---|---|
| [illegible] | [illegible] | zk | [illegible] | 注册监控 | 重置为最近消费位点 |
| [illegible] | [illegible] | zk | [illegible] | 注册监控 | 重置为最近消费位点 |
| [illegible] | [illegible] | zk | [illegible] | 注册监控 | 重置为最近消费位点 |

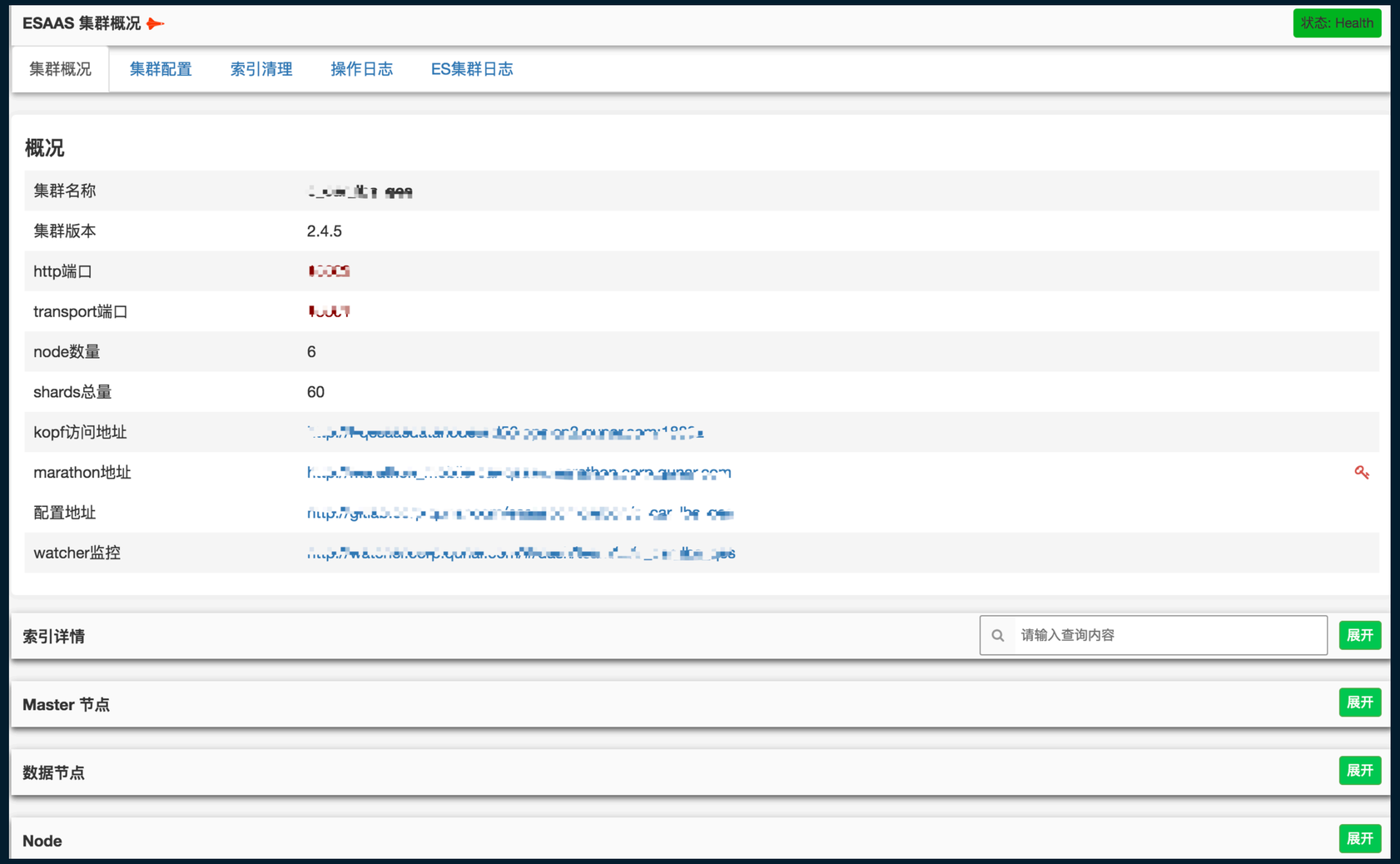
# Flink & ES OLAP environment

## Interface: Elasticsearch

Elasticsearch



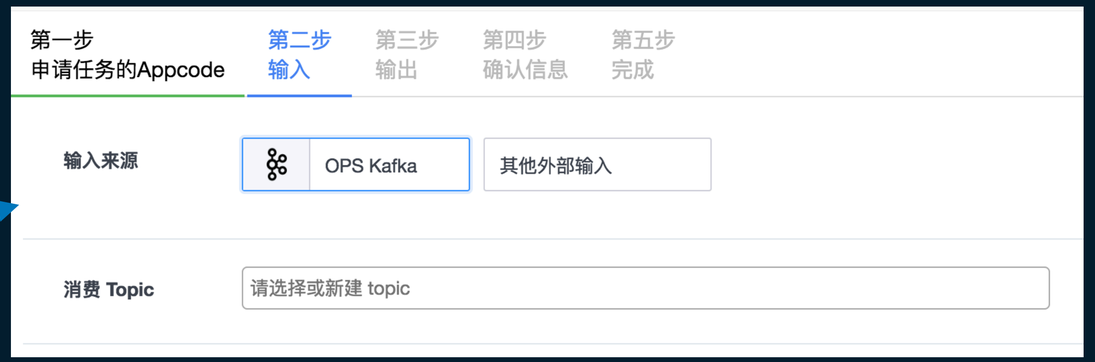
# Flink & ES OLAP environment

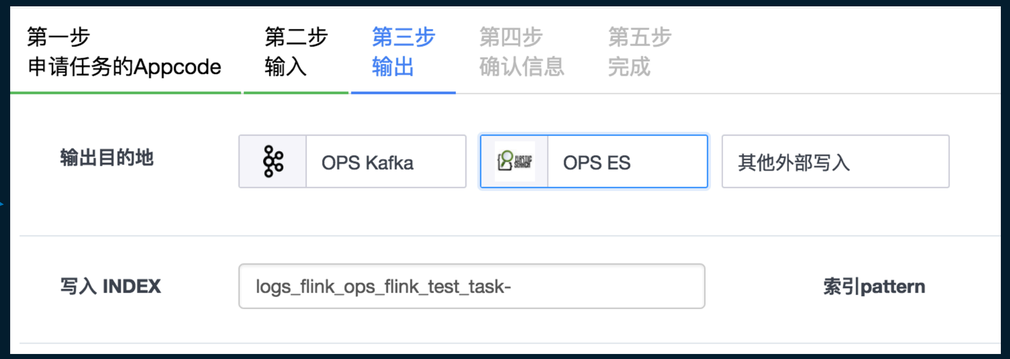


# Flink & ES OLAP environment

## code demo

```
object Main {
    val log = Logger(getClass)
    def main(args: Array[String]) {
        val env = StreamExecutionEnvironment.getExecutionEnvironment
        val flinkConfig = FlinkConfig("APPCODE")

        // Source
        val stream = flinkConfig.getStream(env)

        // Logic
        ....

        // Sink
        flinkConfig.setSink(stream)

        env.execute("APPCODE")
    }
}
```



# Flink & ES OLAP environment

## Debug

```
// 如果是本地执行
if (env.isInstanceOf[LocalStreamEnvironment]) {
    isdev = true
}
```

```
if (isdev) {
    source.setCommitOffsetsOnCheckpoints(false)
    source.setStartFromLatest()
}
```

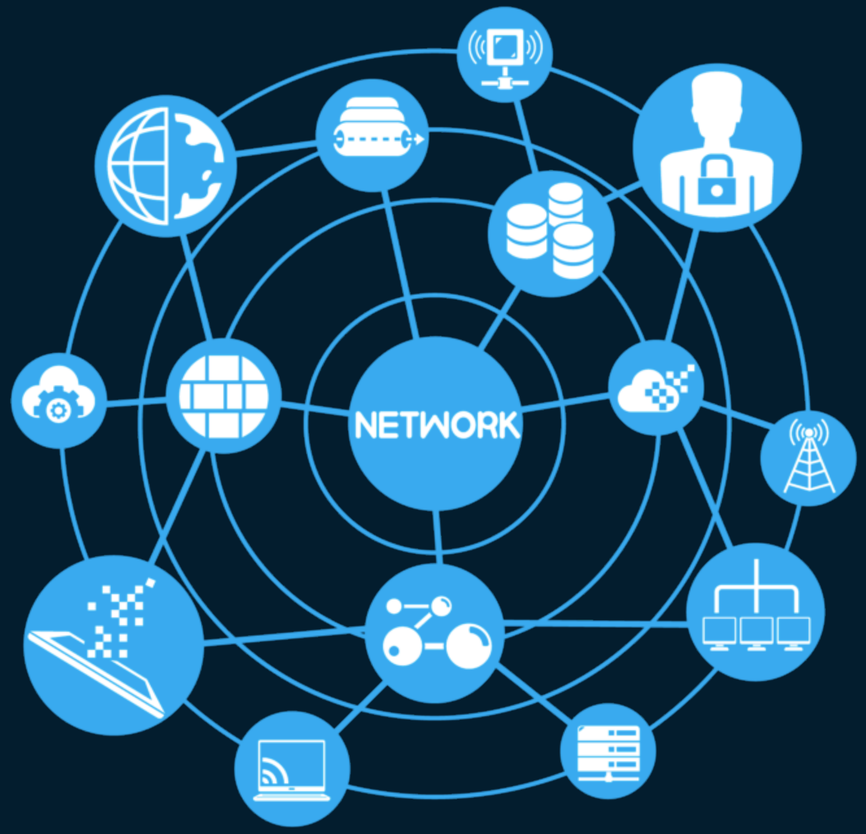
Mini Cluster Local Debug

# Flink & ES OLAP environment

## Monitor

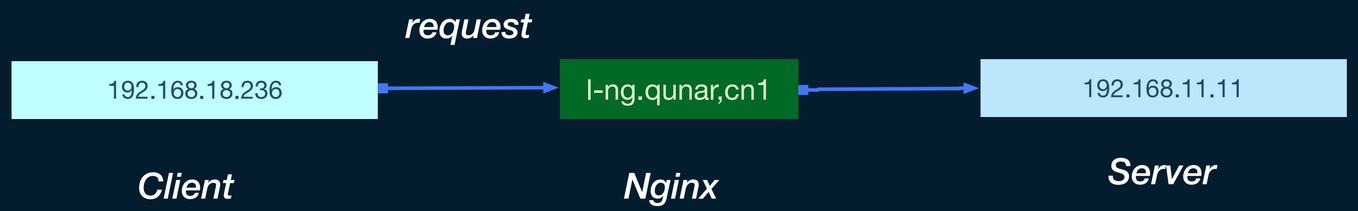
# 4 Realtime network topology

# Realtime network topology



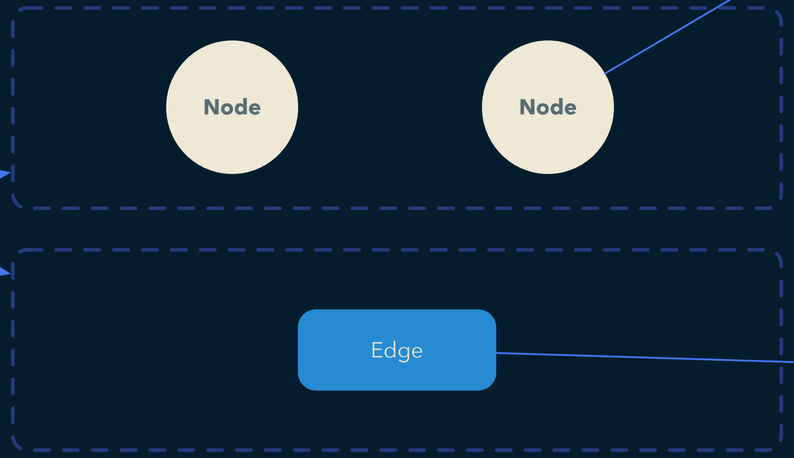

- 网络运维
  Network Ops
- 基础统计
  Monitor statistics
- 事件关联
  Event correlation
- 大盘展示
  Realtime display

# Realtime network topology




**Ng日志**

| | |
|---|---|
| remote_addr | 192.168.18.236 |
| source_host | l-ng.qunar.cn1 |
| server_addr | 192.168.11.11 |
| status | 200 |
| http_user_agent | Mazila… |
| request_time | 0.001 |
| status | 200 |
| domain | www.qunar.com |
| timestamp | 2018-09-19T16:20:00Z |



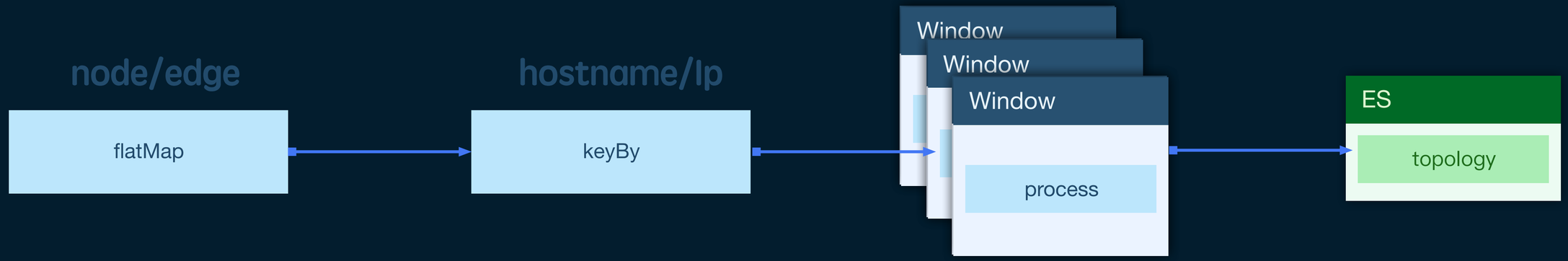

**Node**

| |
|---|
| host_name |
| appcode |
| host_type |
| parent |
| pv |
| timestamp |

**Edge**

| |
|---|
| from_host |
| from_ip |
| source_host |
| source_ip |
| to_host |
| to_ip |
| domain |
| pv |
| timestamp |

# Realtime network topology



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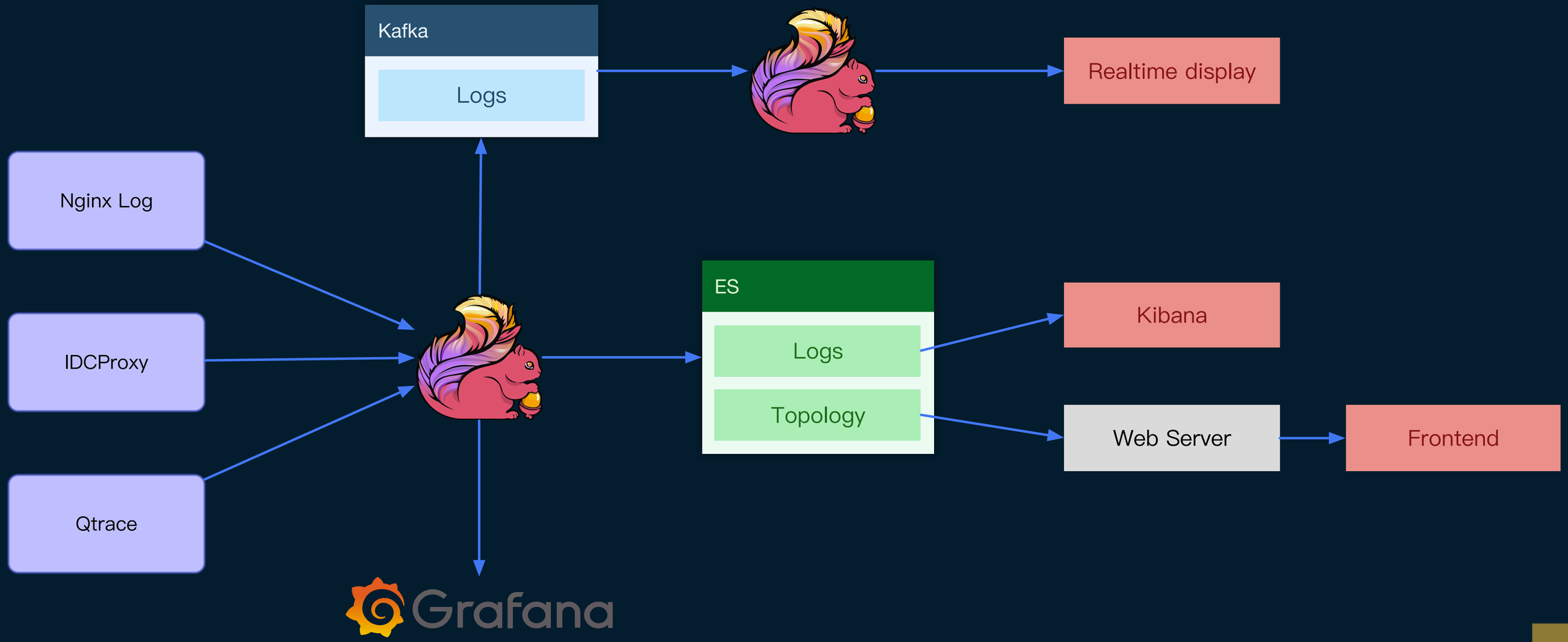

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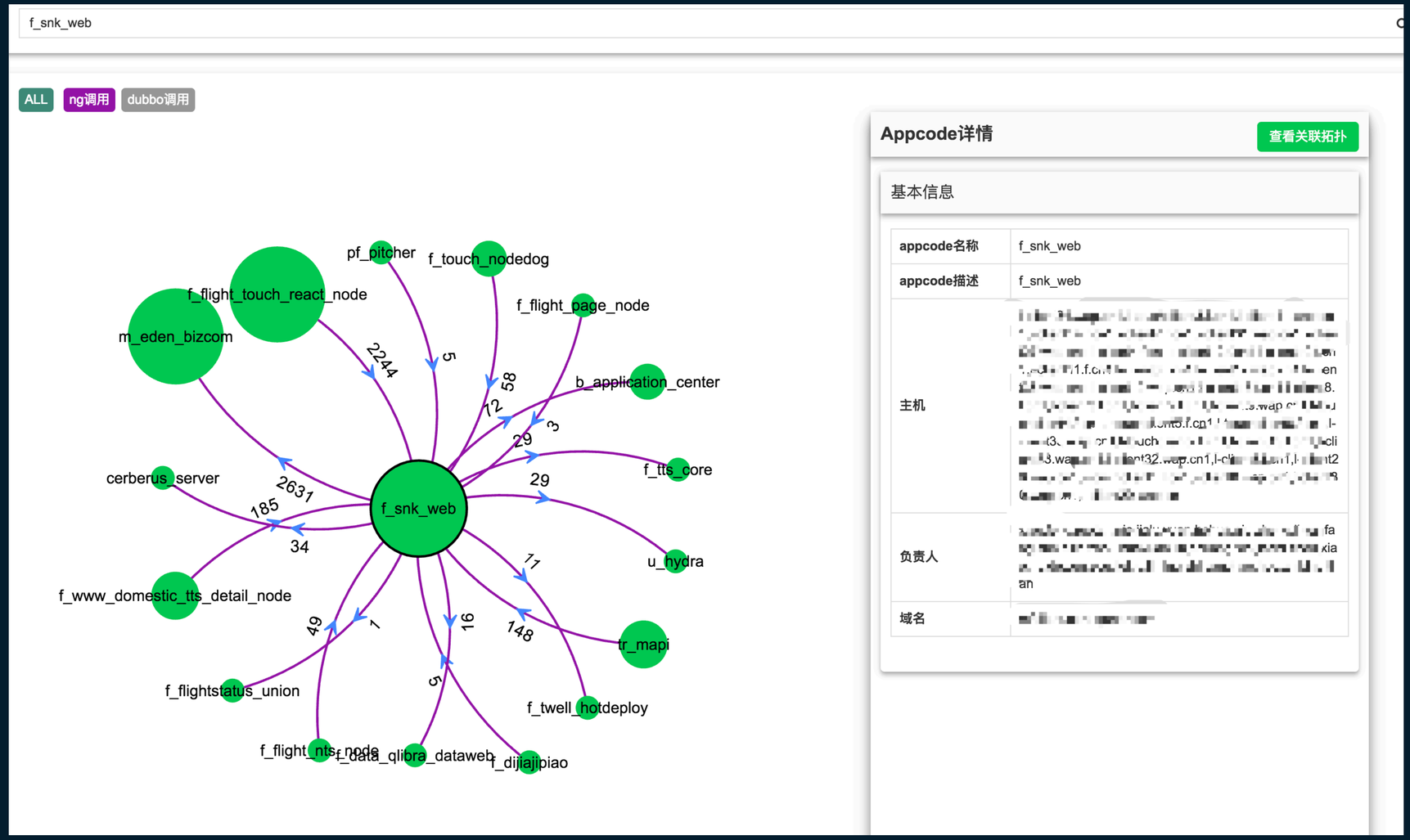


THANKS