



Architectures for Event Streaming

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Event Streaming is Everywhere

Event Streaming Successes

Retail

- Real-time Inventory
- Personalized Offers
- Loss Prevention
- Delivery Optimization

Banking

- Card Fraud Detection
- Real-time Loan Approval
- Account Login Security
- Next Best Action

Utility

- Smart Metering
- Equipment Monitoring
- Load Management
- Supplier Pricing
- Predictive Maintenance

Event Streaming Successes

Customer 360

- Know Your Customer
- Omni-Channel Experience
- Next Best Offer
- Customer Change Events
- Cross-sell / Up-sell

Investment Banking

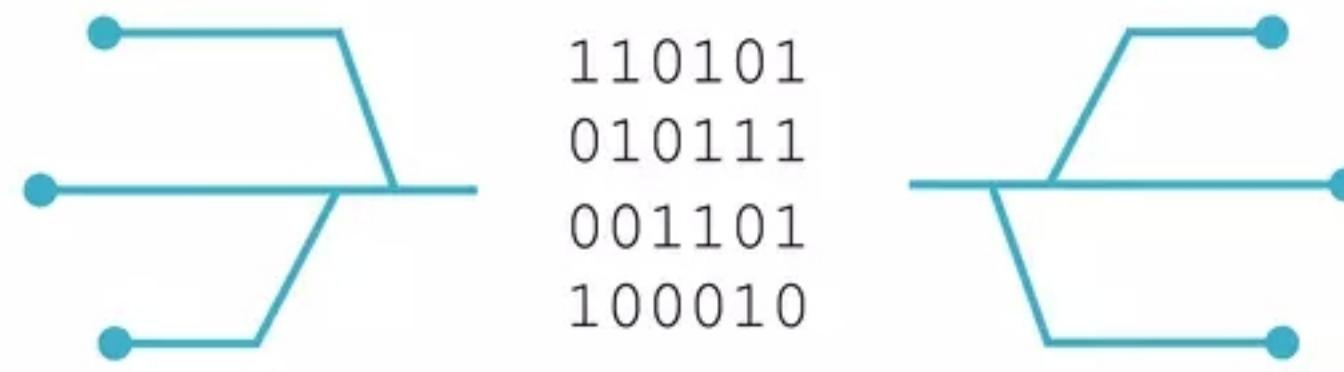
- Post-trade Reconciliation
- Portfolio Management
- ForEx Derivative Pricing
- Compliance Reporting
- Credit Authorization

IT / Transversal

- Cybersecurity / SIEM
- Hybrid Cloud
- Mainframe Offload
- Streaming ETL / Analytics

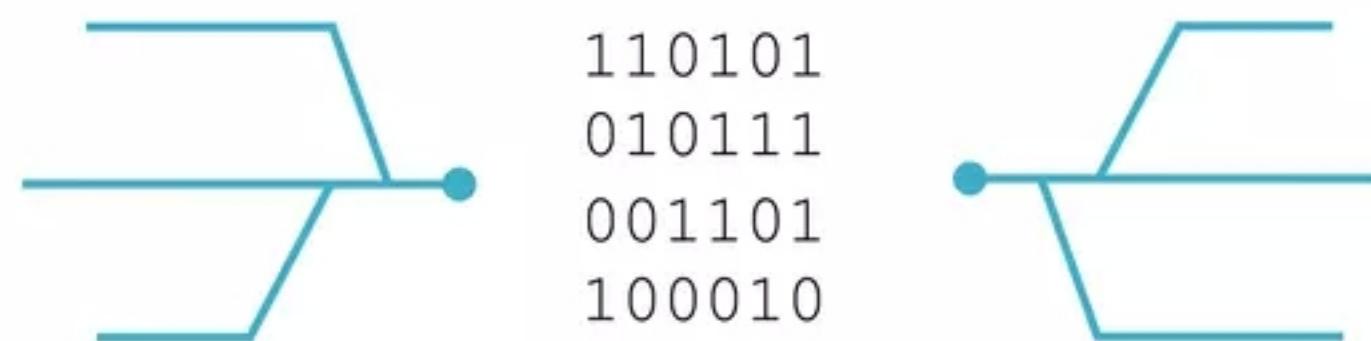
The Event Streaming Platform

Publish and subscribe to streams of events



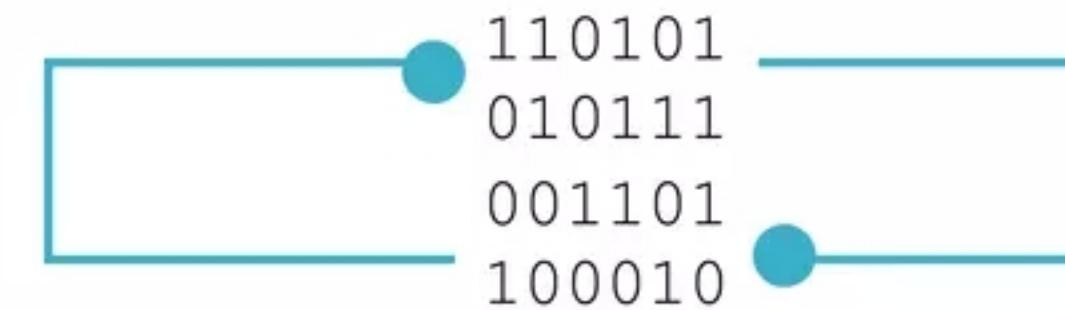
Similar to a message queue or enterprise messaging system

Store streams of events



In a fault-tolerant way

Process streams of events



In real-time, as they occur

ETL/Data Integration



Batch

Expensive

Time Consuming



High Throughput

Durable

Persistent

Maintains Order

Messaging



Fast (Low Latency)



Difficult to Scale

No Persistence

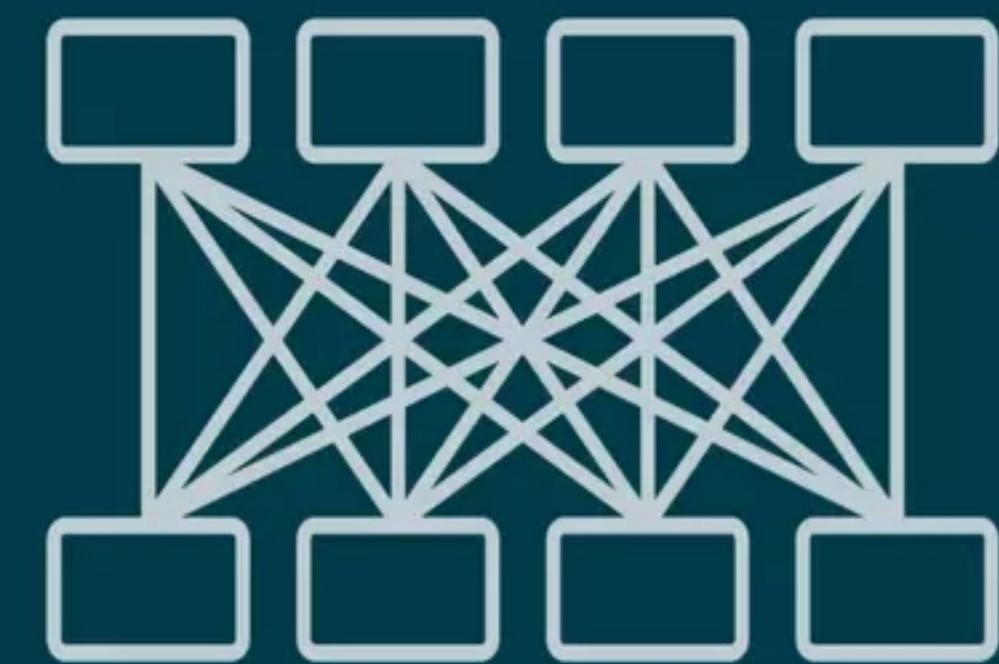
Data Loss

No Replay

ETL/Data Integration

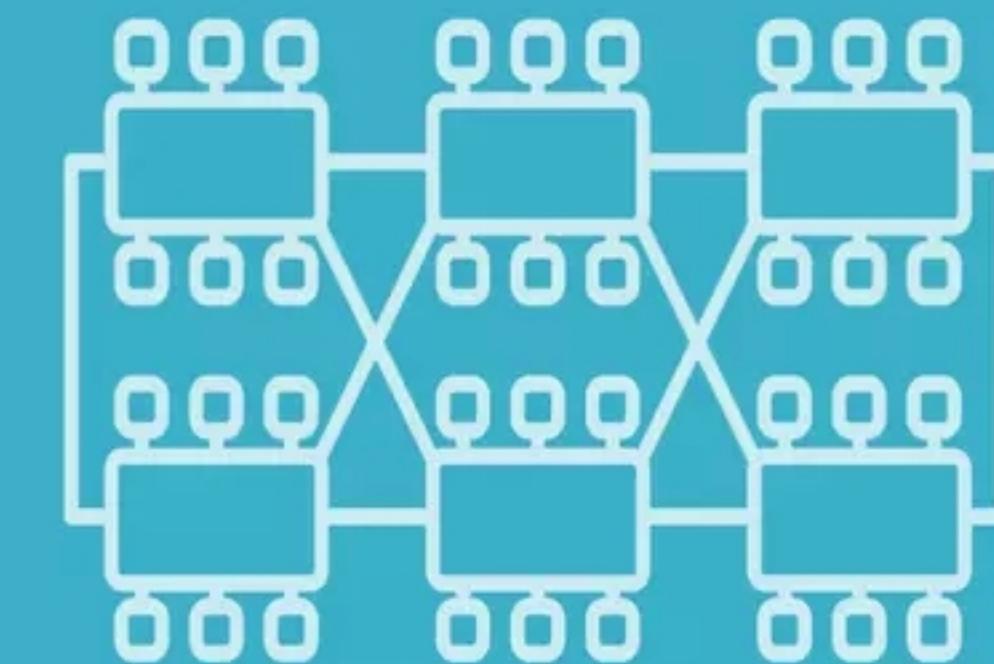
- Batch
- Expensive
- Time Consuming

High Throughput
Durable
Persistent
Maintains Order



Messaging

- + Fast (Low Latency)
- Difficult to Scale
- No Persistence
- Data Loss
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ETL/Data Integration

-
- Batch
- Expensive
- Time Consuming

Event Streaming Paradigm

- + High Throughput
- + Durable
- + Persistent
- + Maintains Order
- + Fast (Low Latency)

Messaging

- Difficult to Scale
- No Persistence
- Data Loss
- No Replay

Stored records

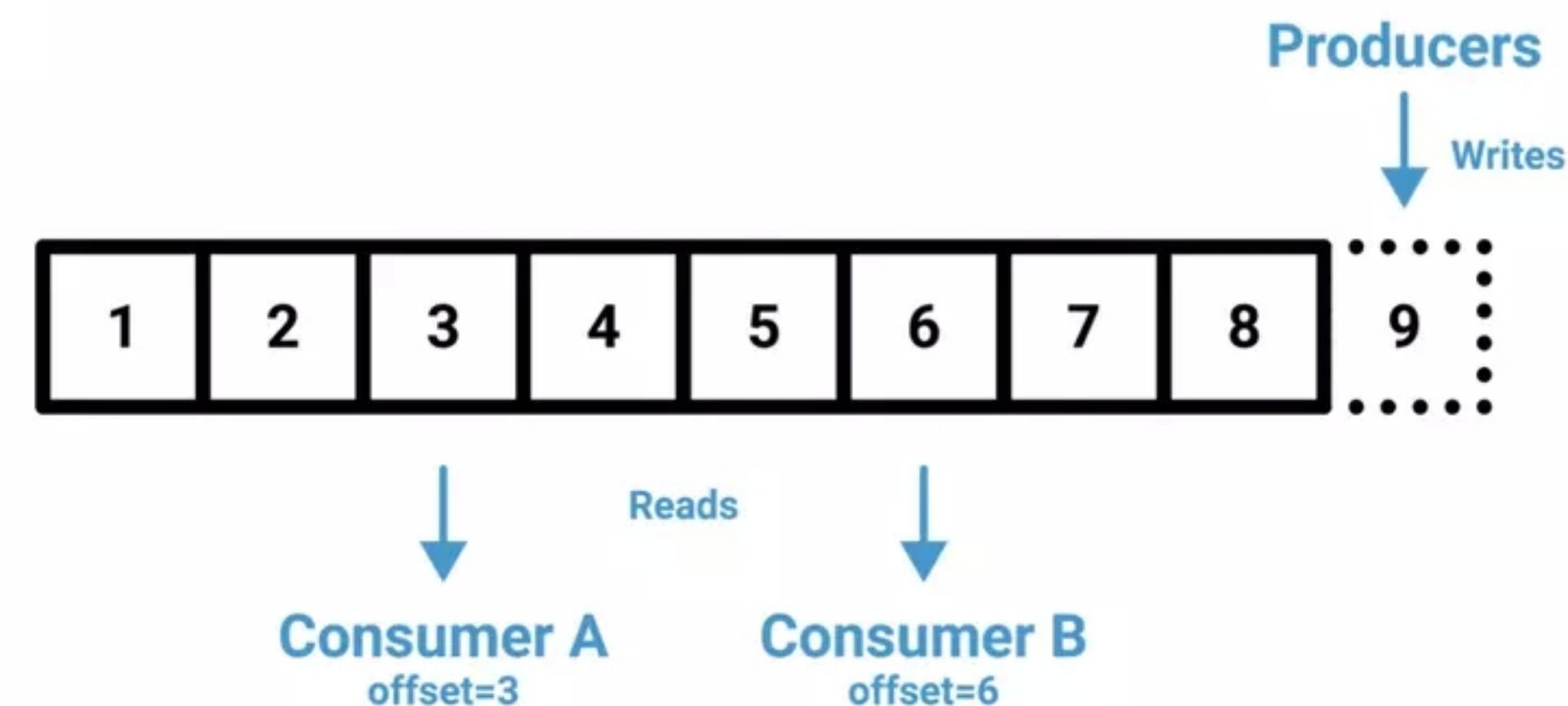
Transient Messages

Event Streaming Paradigm

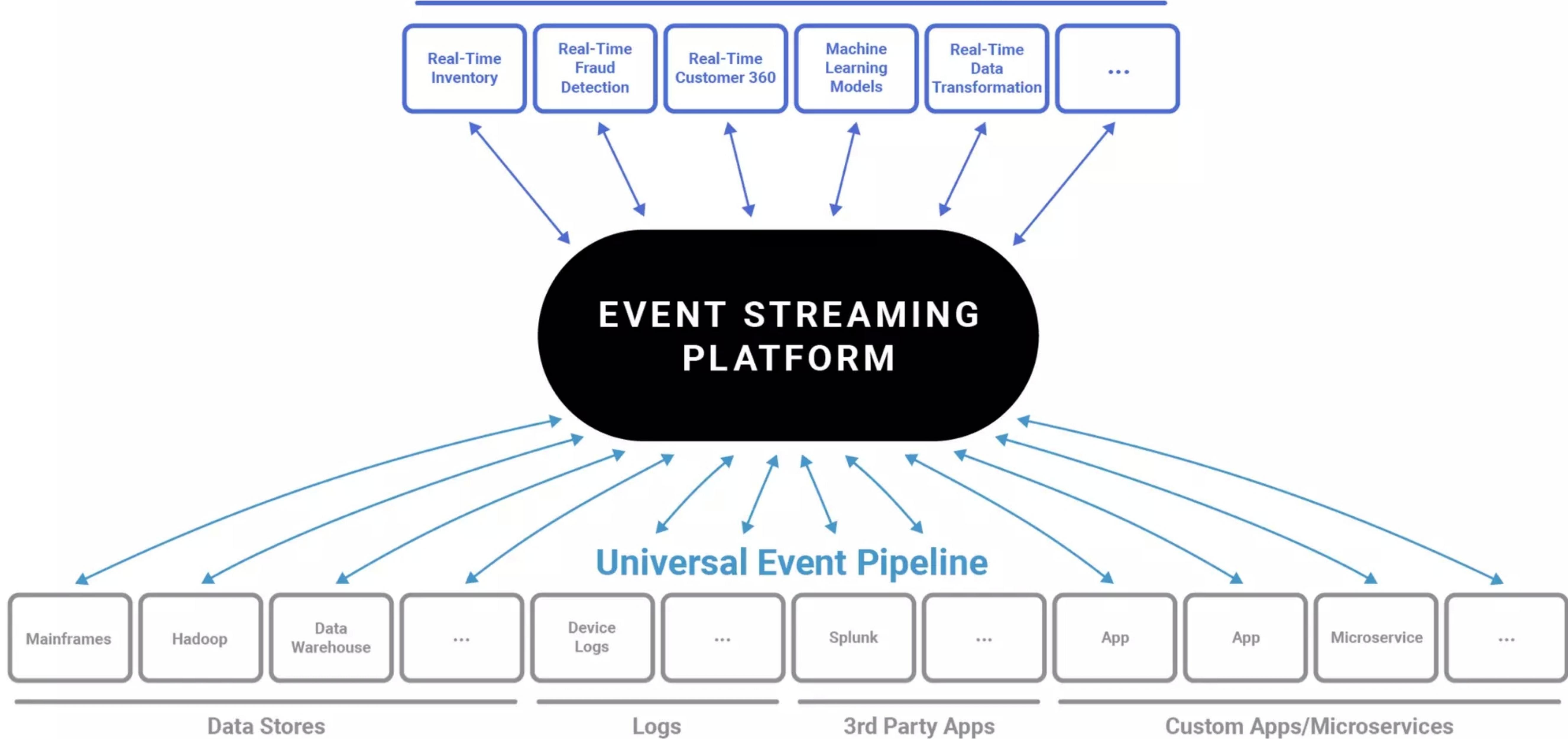
To rethink data as not stored records or transient messages, but instead as a continually updating stream of events



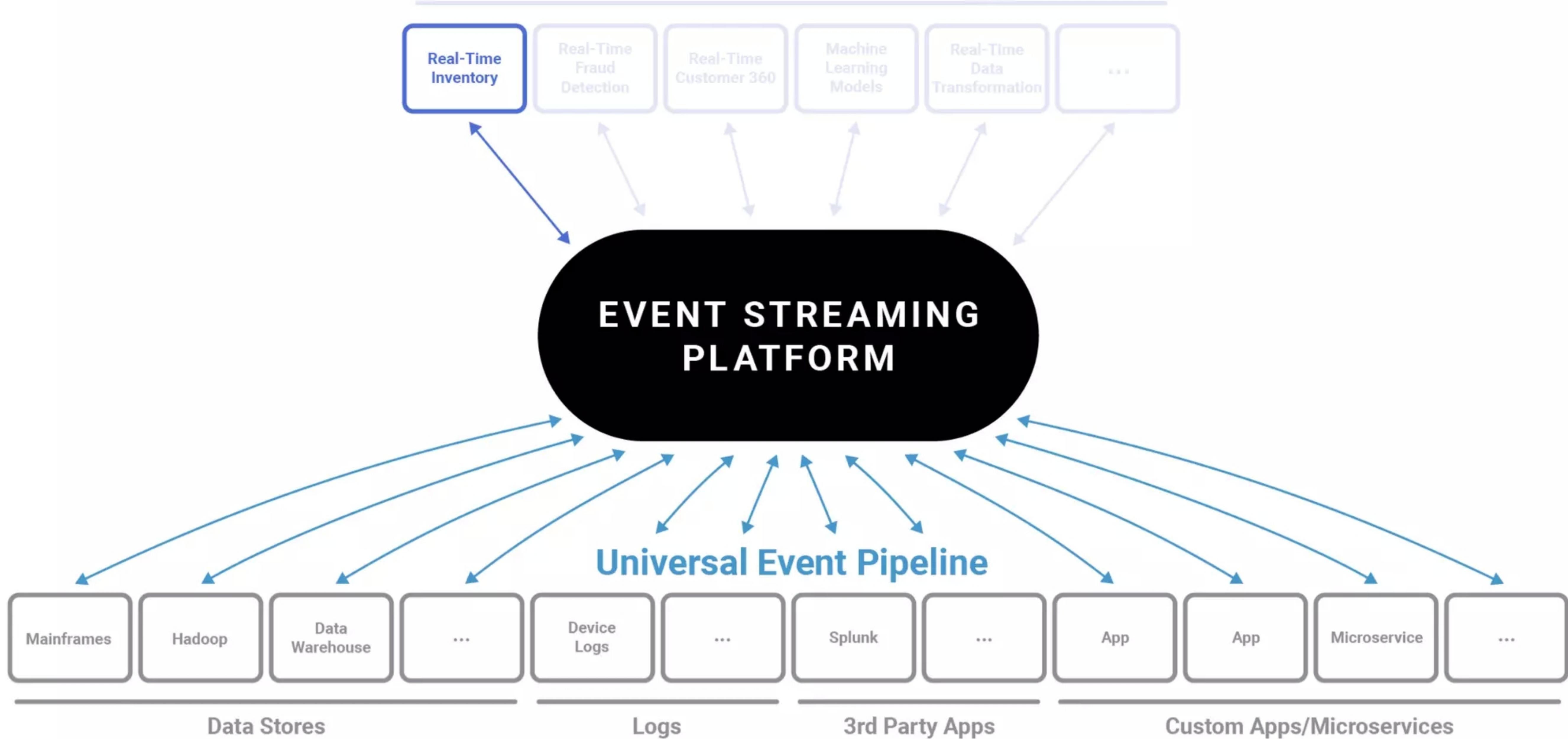
Event Streaming Paradigm



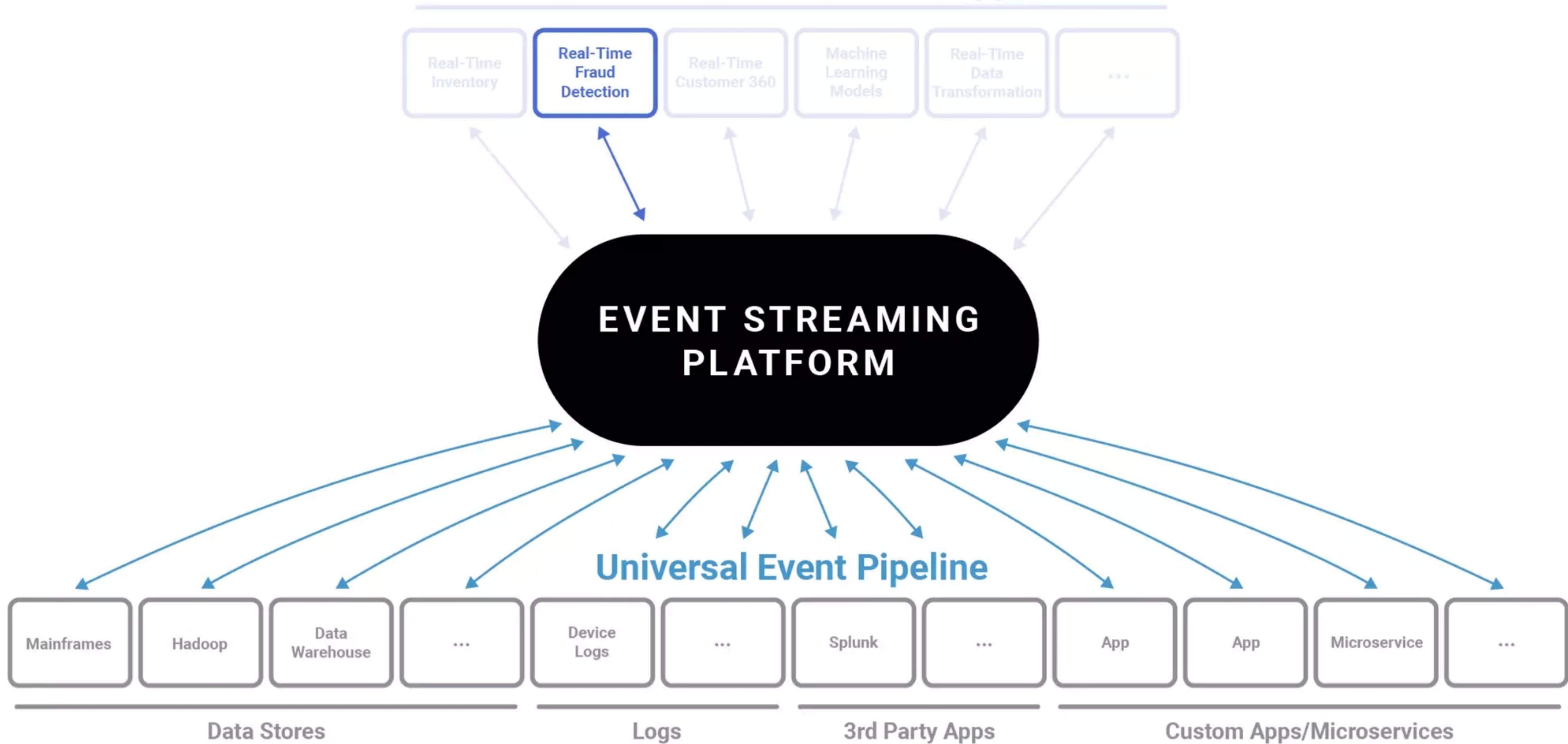
Contextual Event-Driven Apps



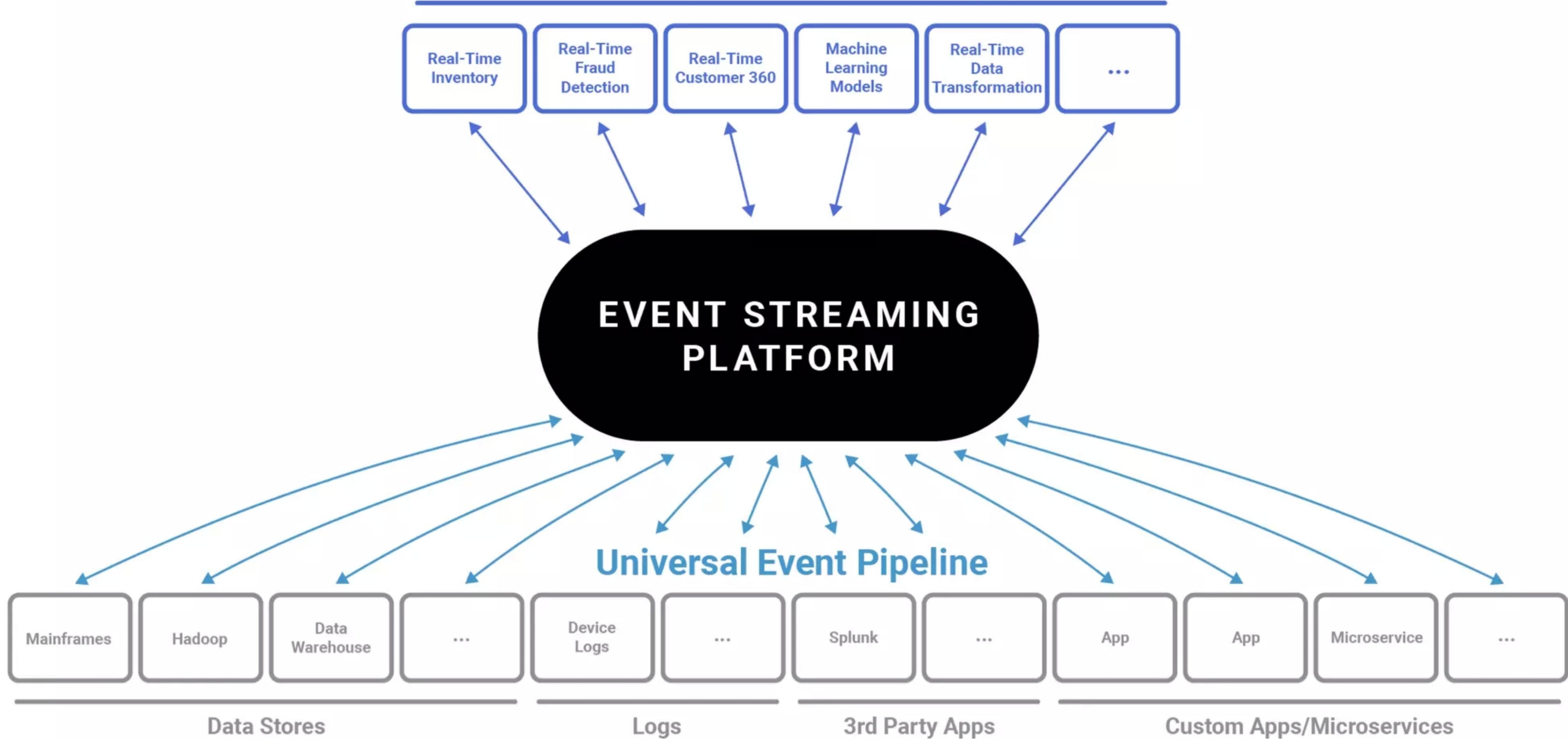
Contextual Event-Driven Apps



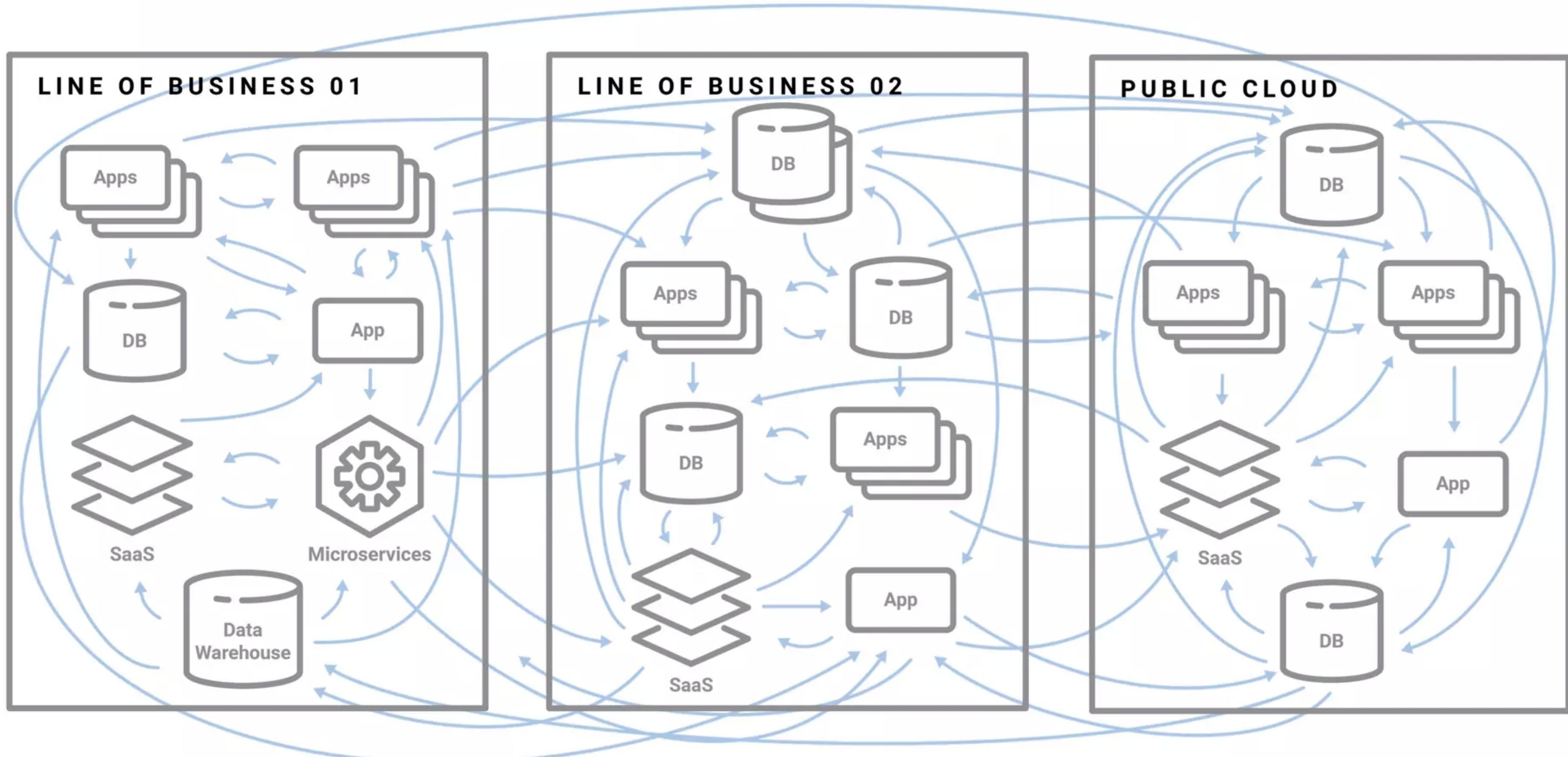
Contextual Event-Driven Apps



Contextual Event-Driven Apps



Organizations, In Software

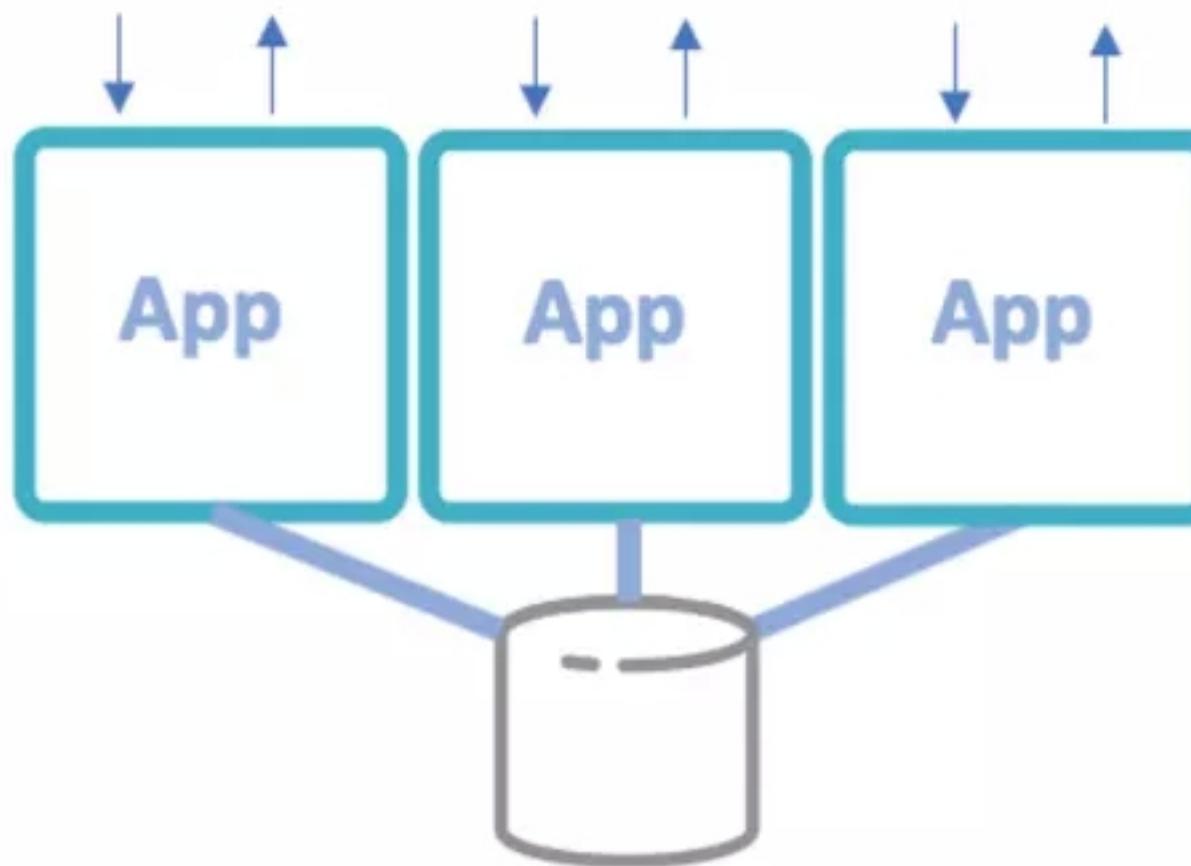


Evolution of software systems

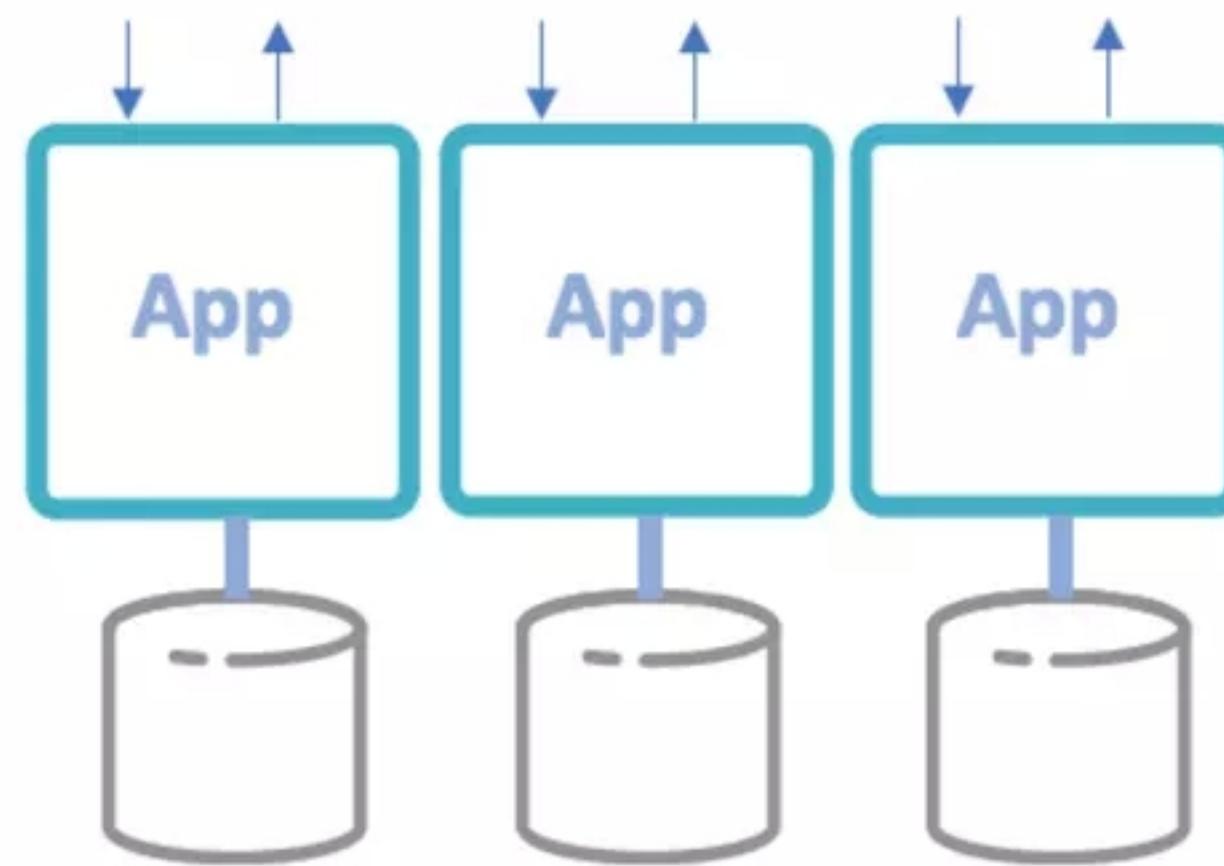
Monolith



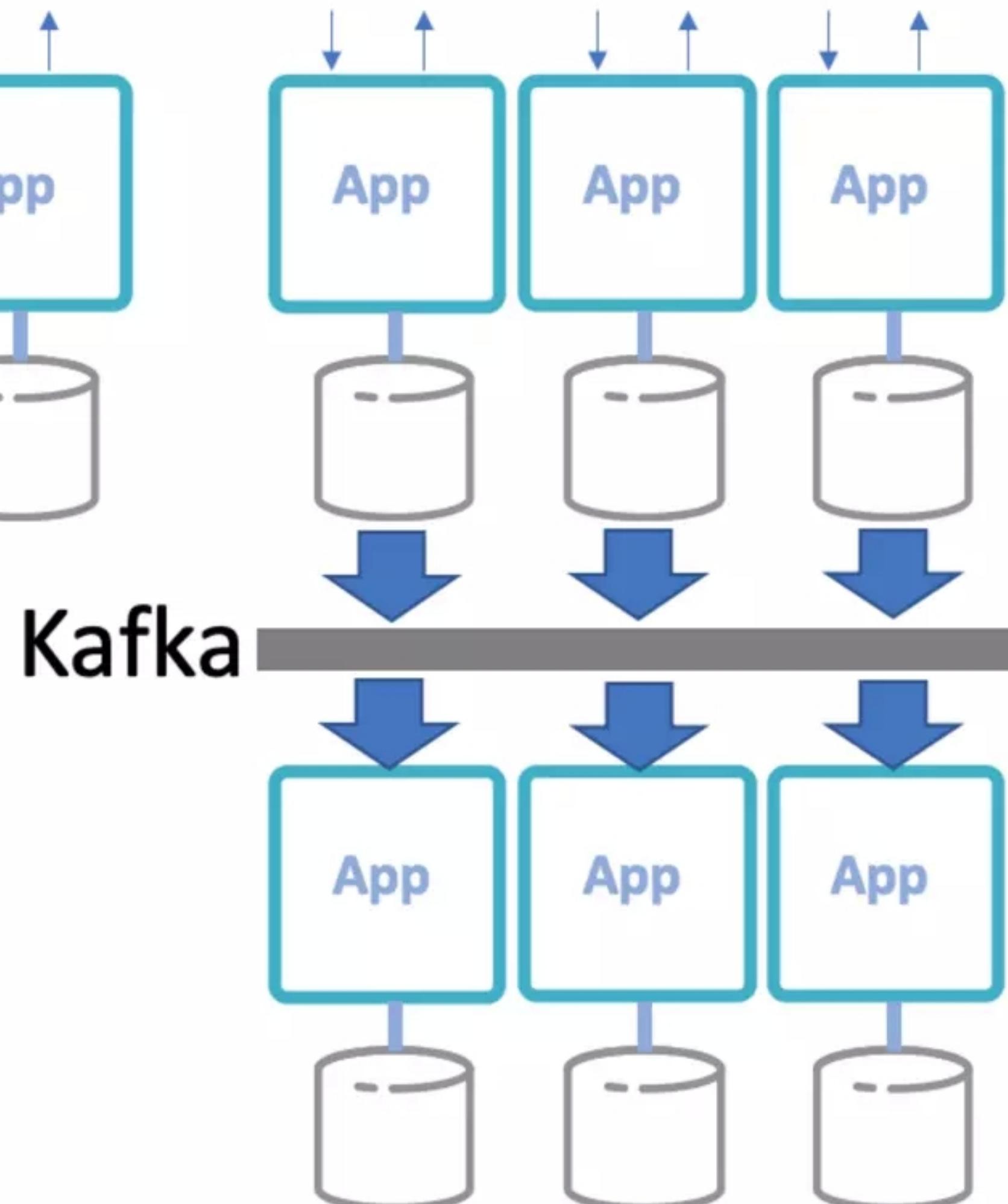
Distributed Monolith



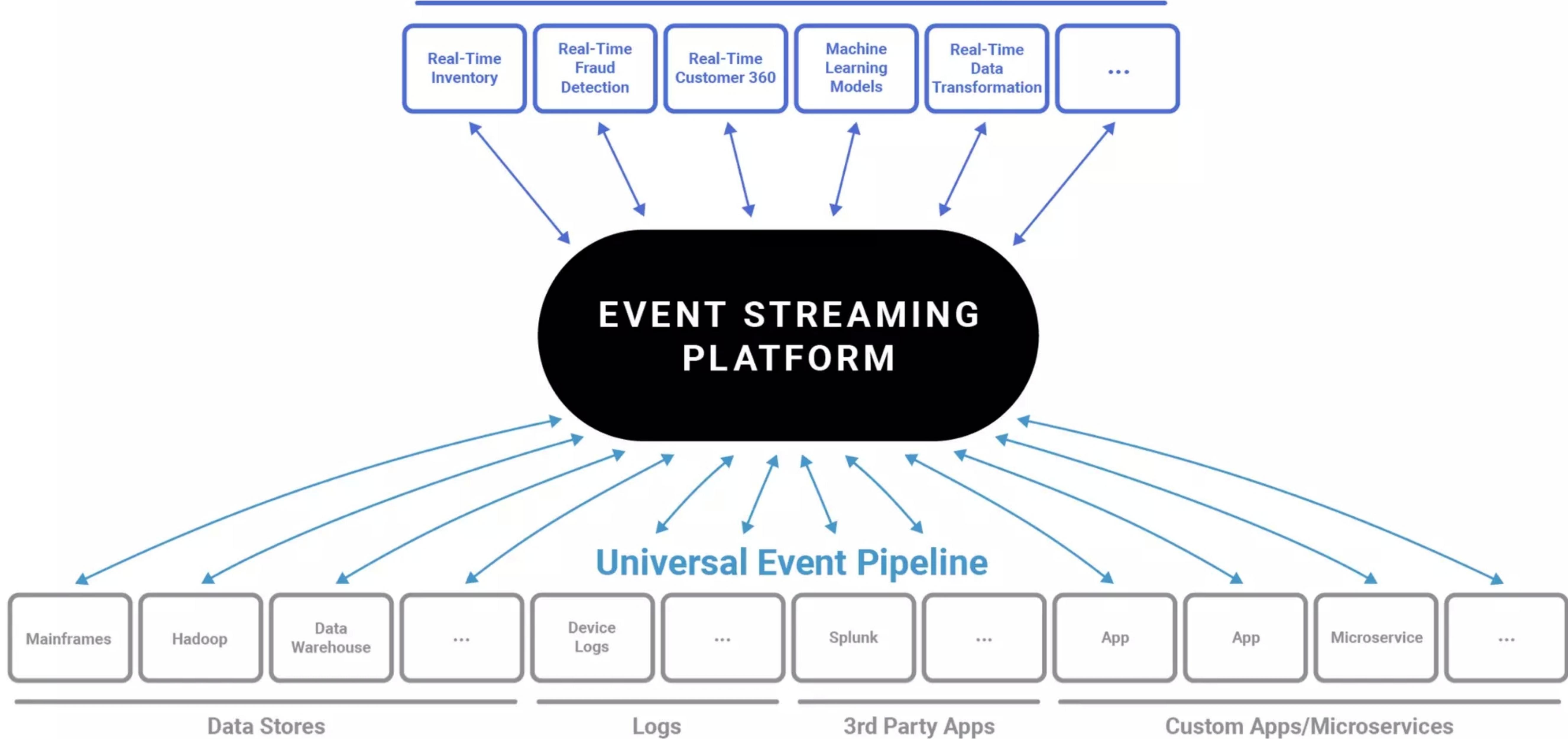
Microservices



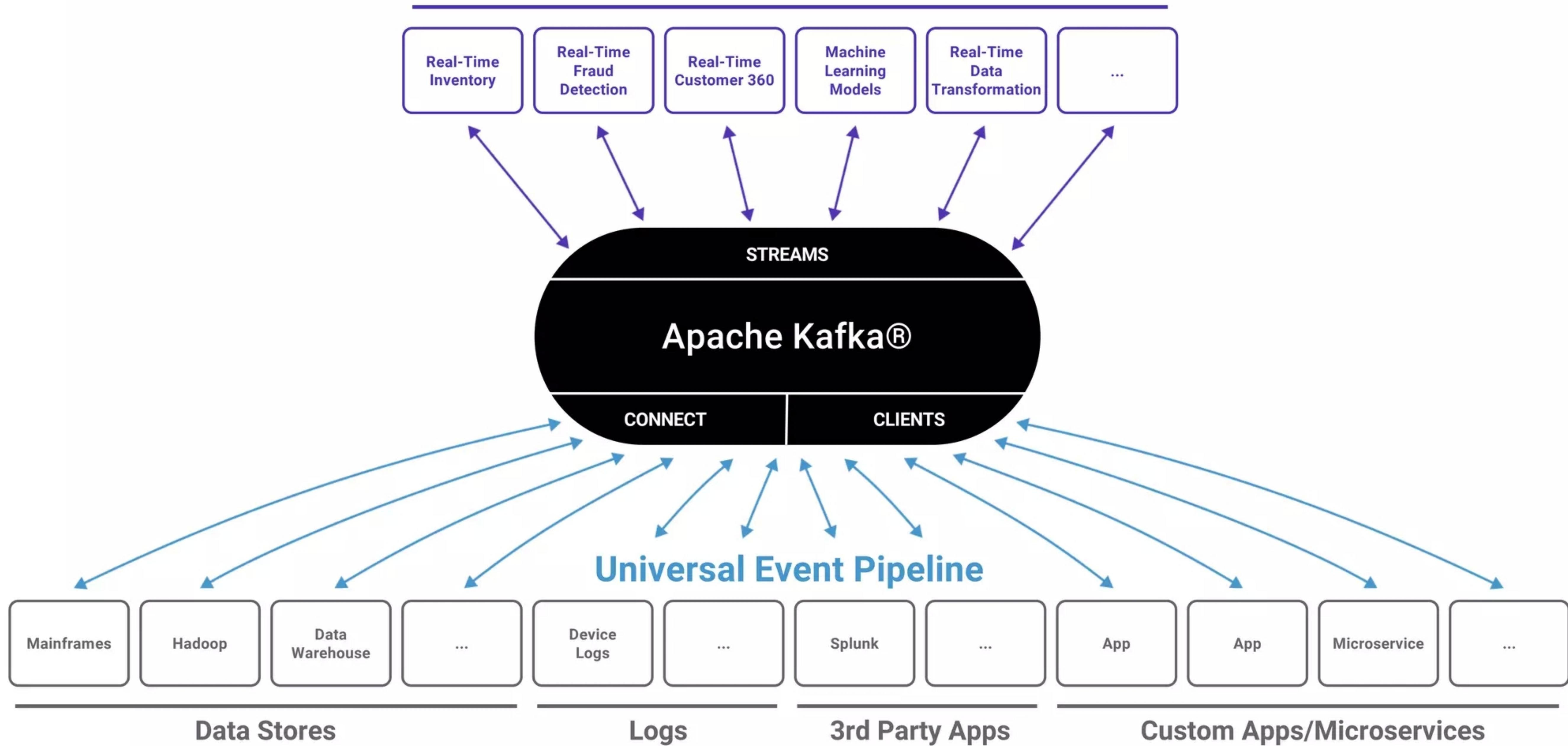
Event-Driven
Microservices



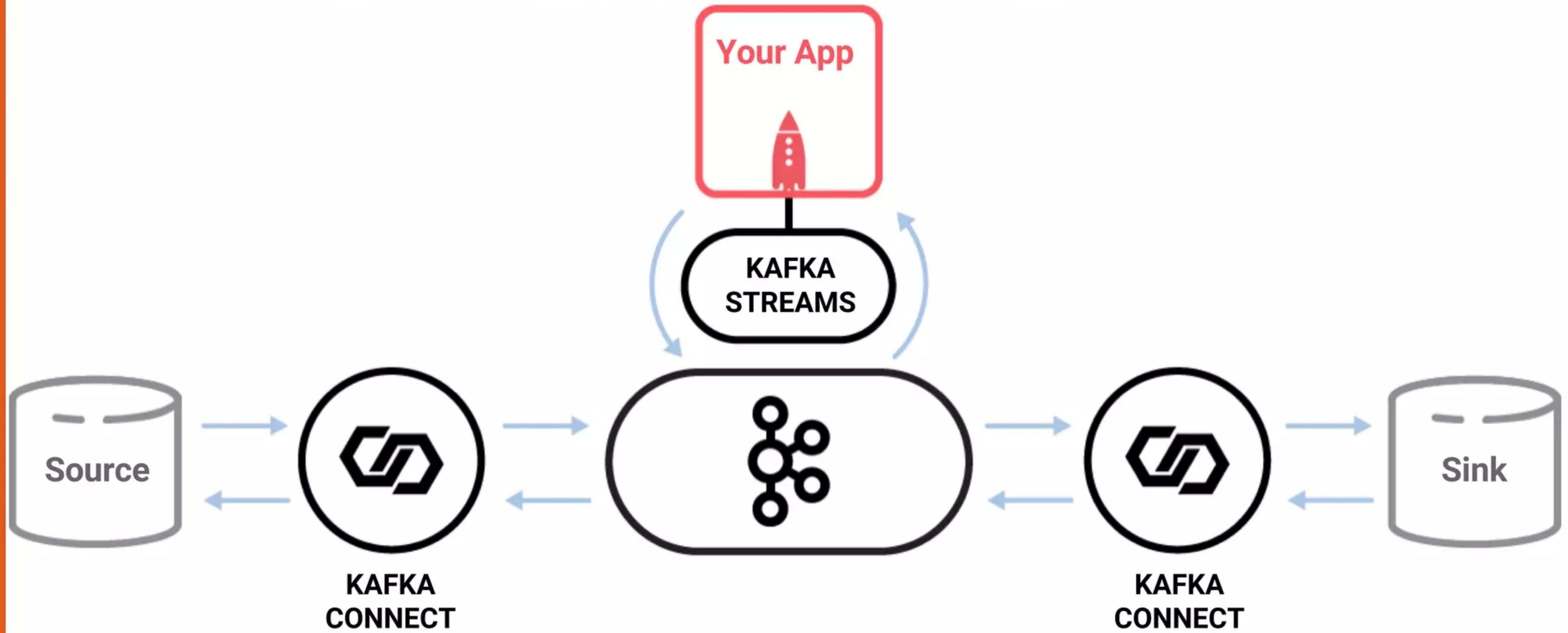
Contextual Event-Driven Apps



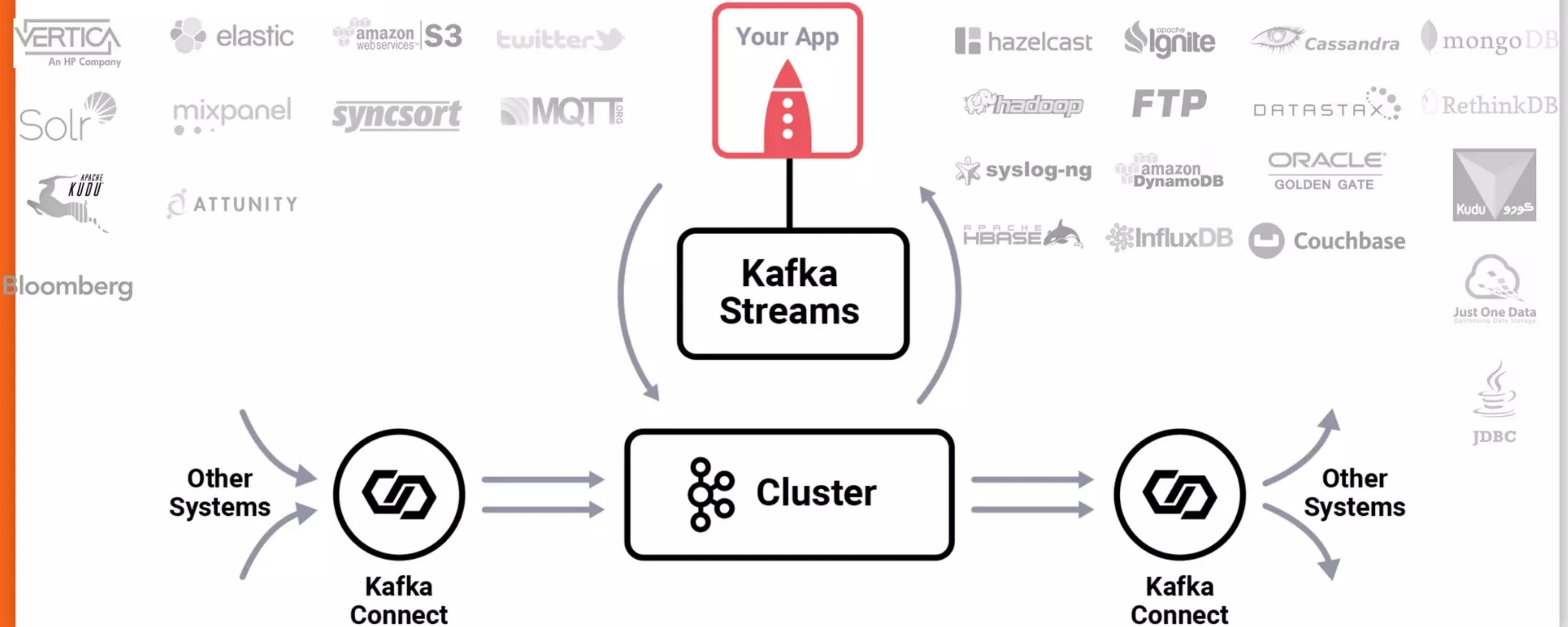
Contextual Event-Driven Apps



Kafka Connect and Kafka Streams



Kafka Connect and Connector Ecosystem



Common Architectures

Change Data Capture (CDC)

CDC Options

- CDC tools work from the log files of a database
- Creating minimal system load

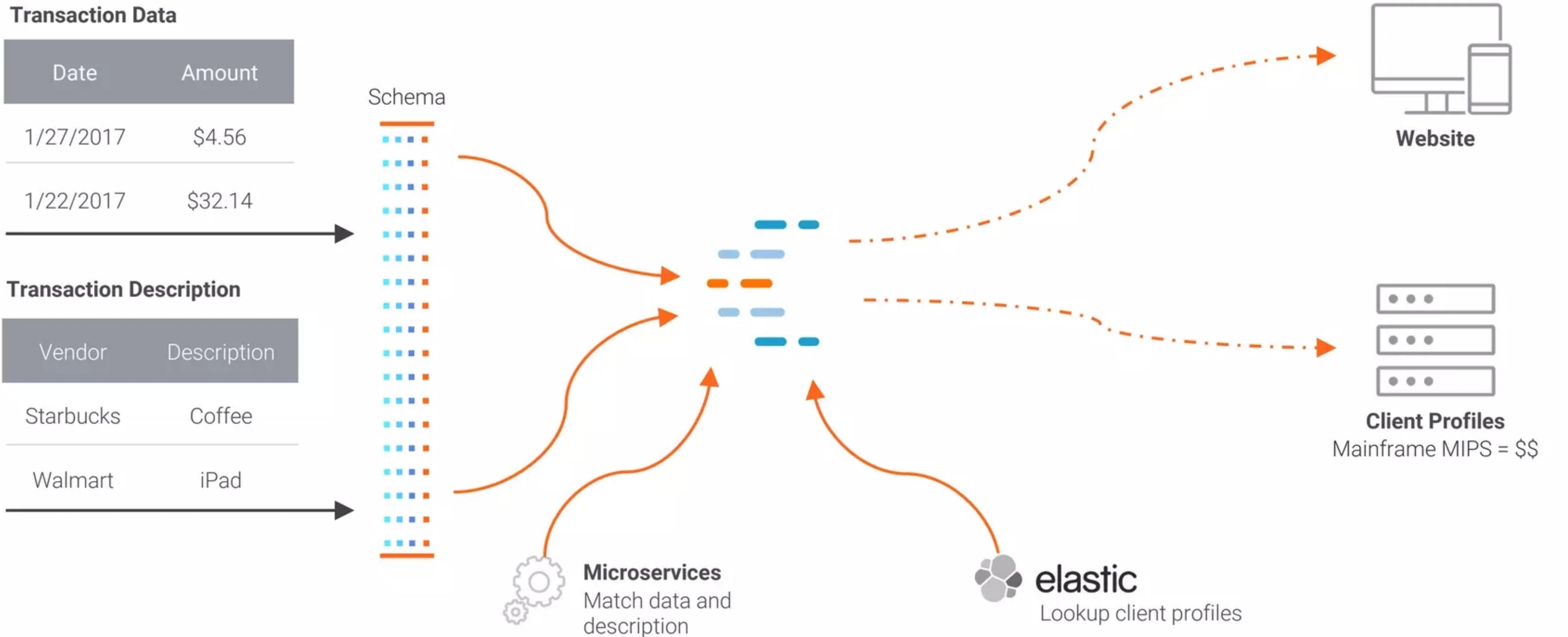
Vendor Solutions

- Oracle Golden Gate
- IBM Infosphere Data Replicator
- Many Mainframes can publish change data to MQ, then use Confluent MQ connector
- Attunity
- HVR
- SQData
- ...

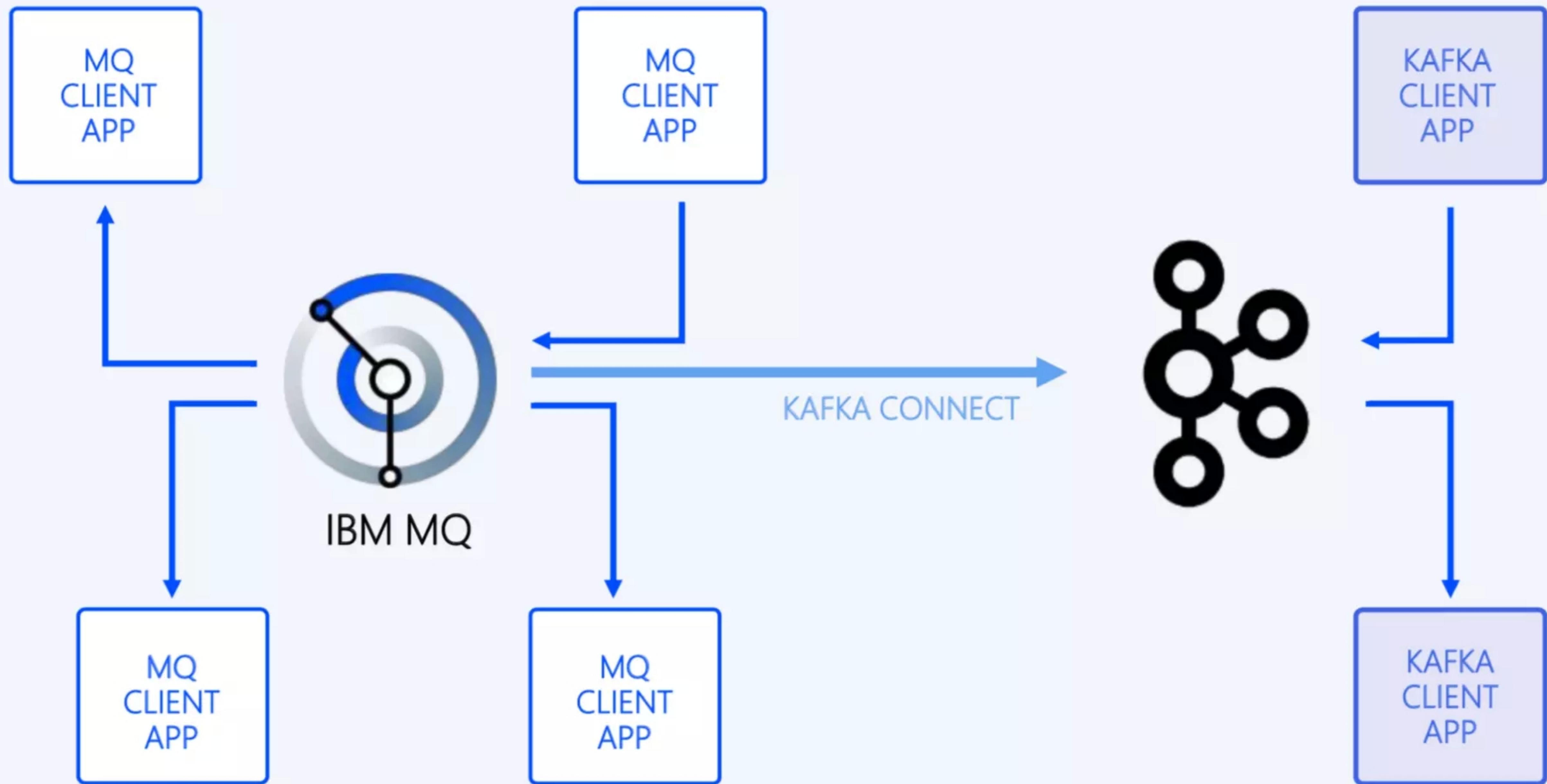
Community Solutions

- Debezium Project
 - Postgres, MySQL, MongoDB, SQLServer

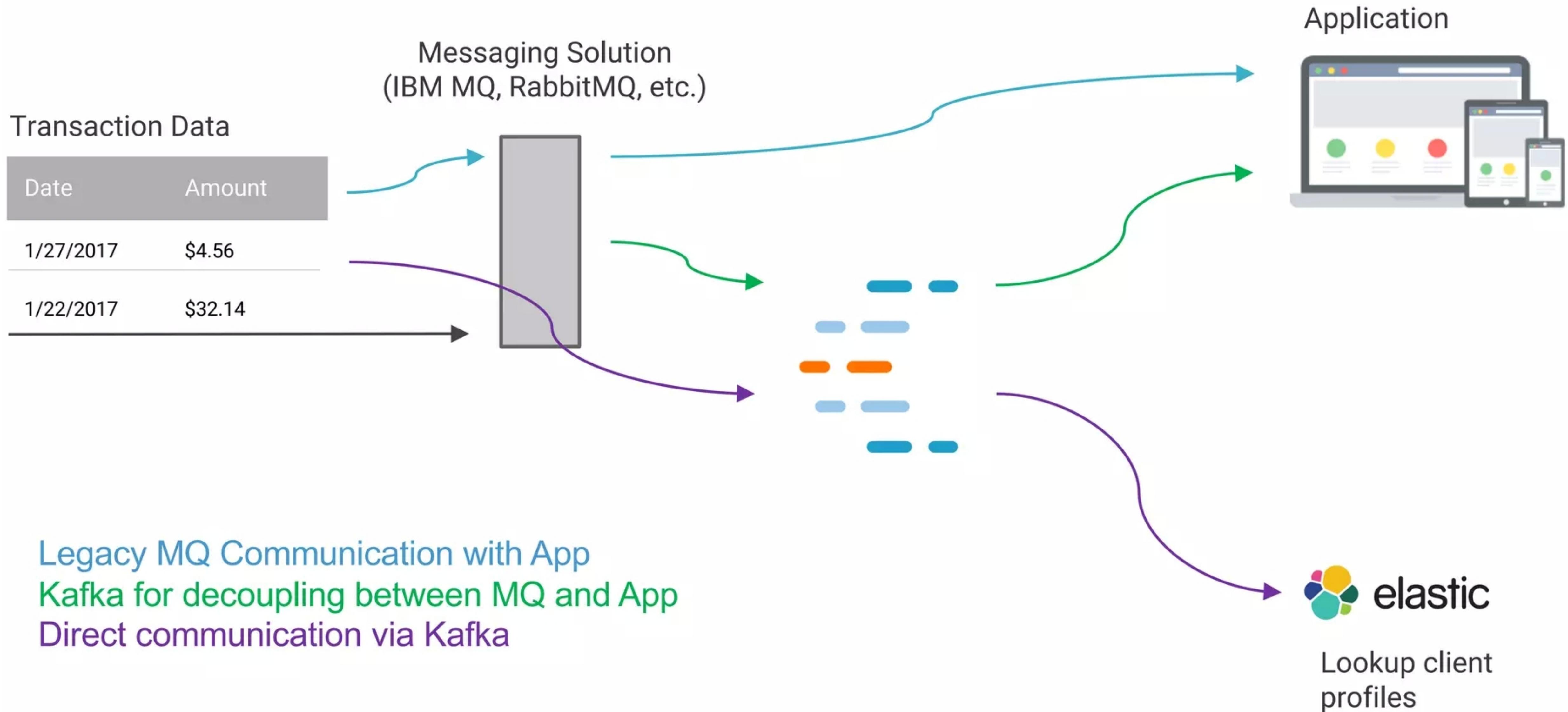
Mainframe Offload



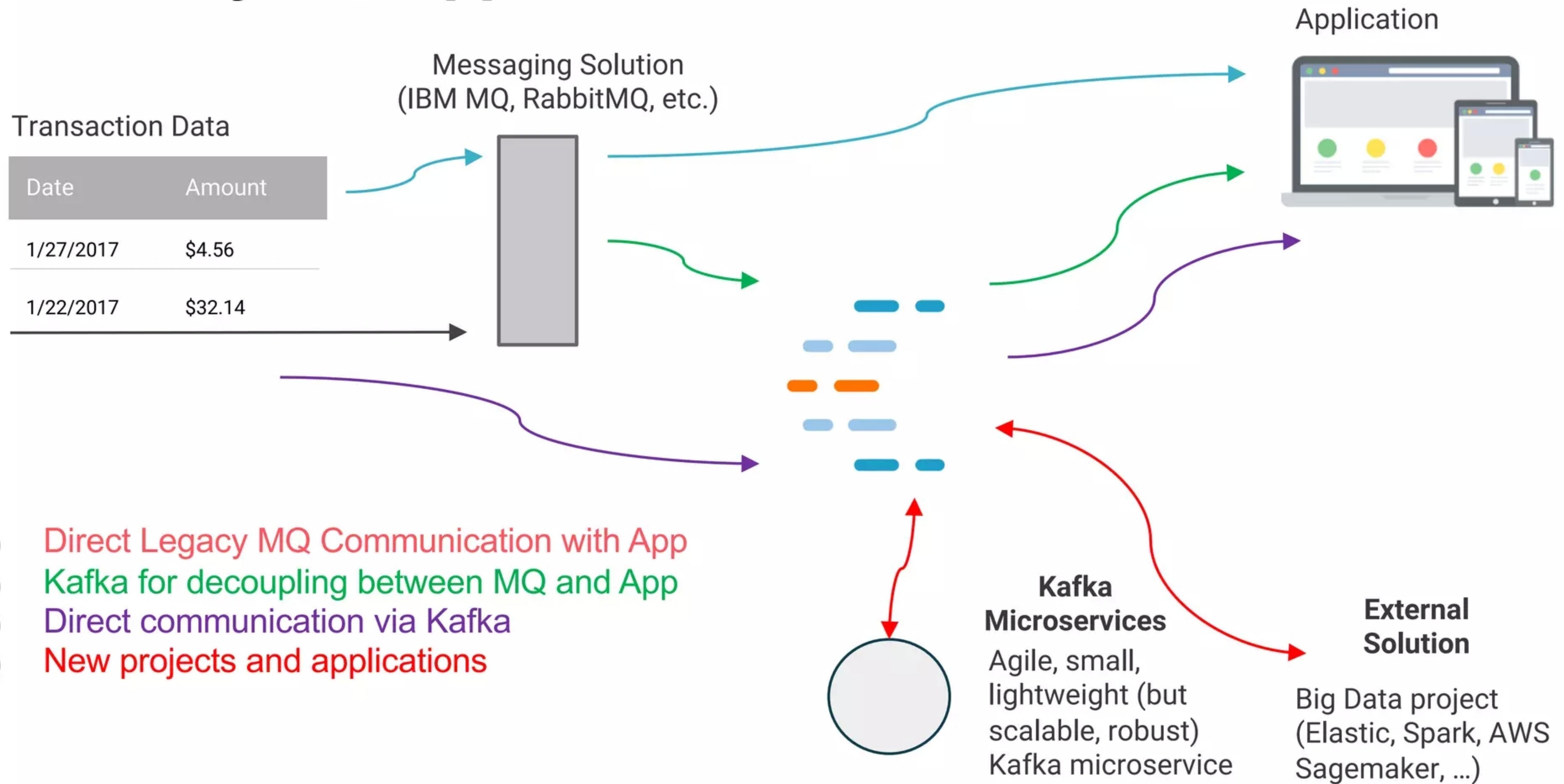
MQ Connectors



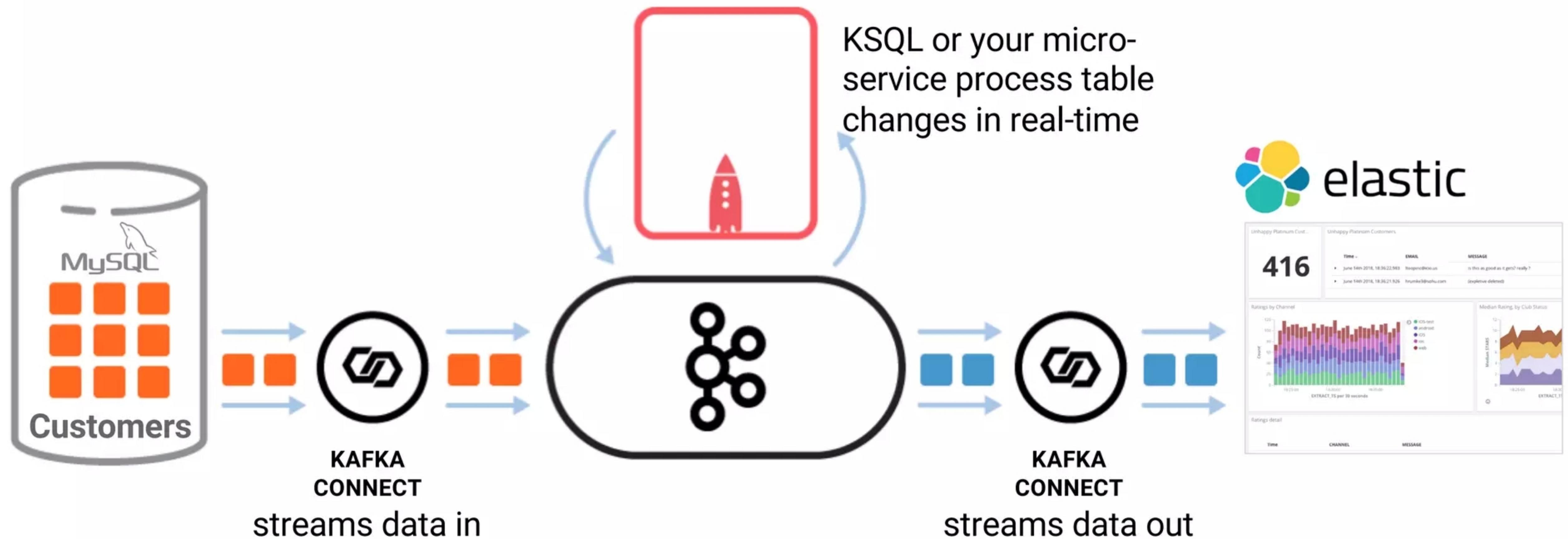
MQ Integration and EVENTUAL Migration



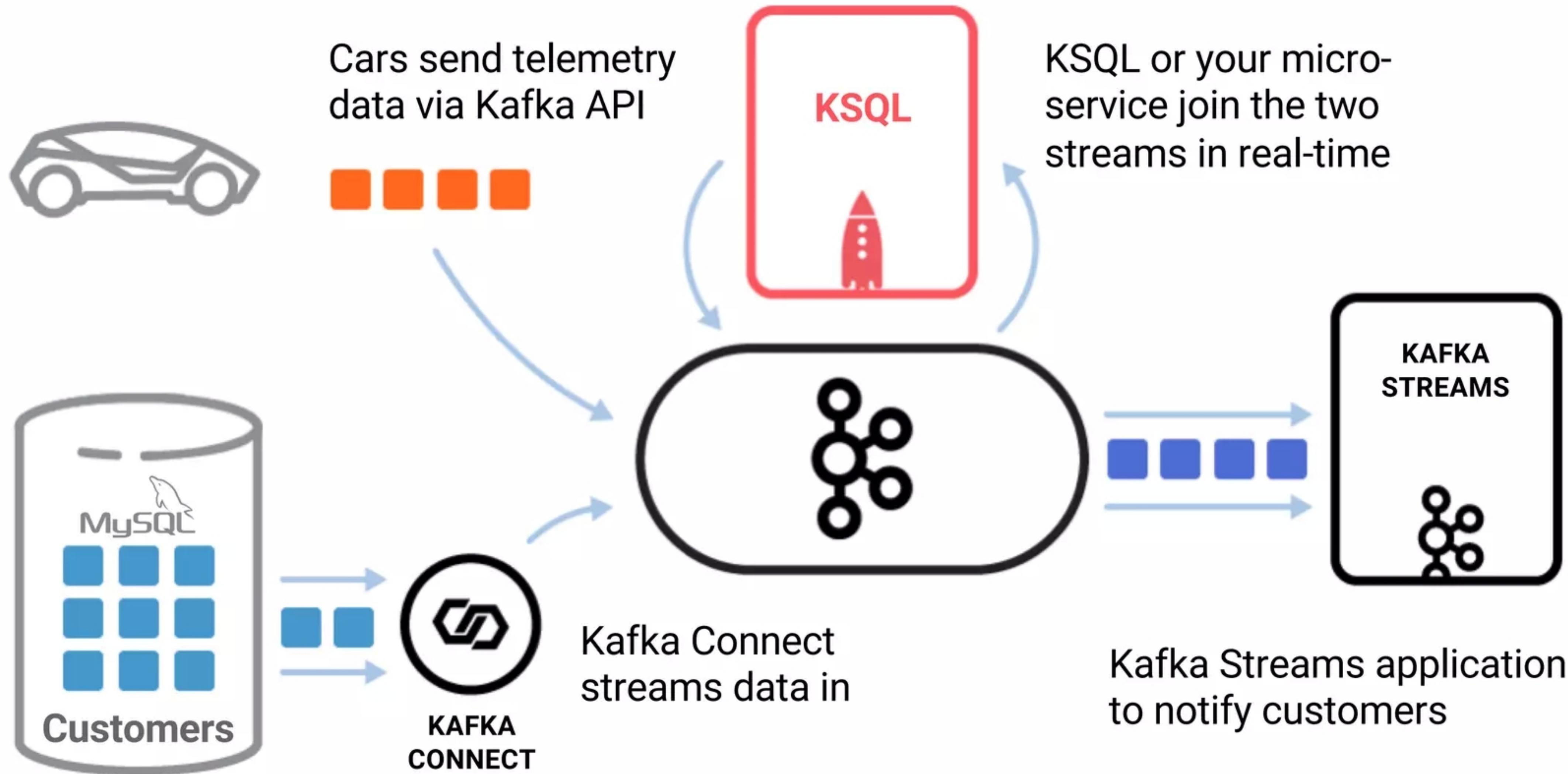
New Project / Application



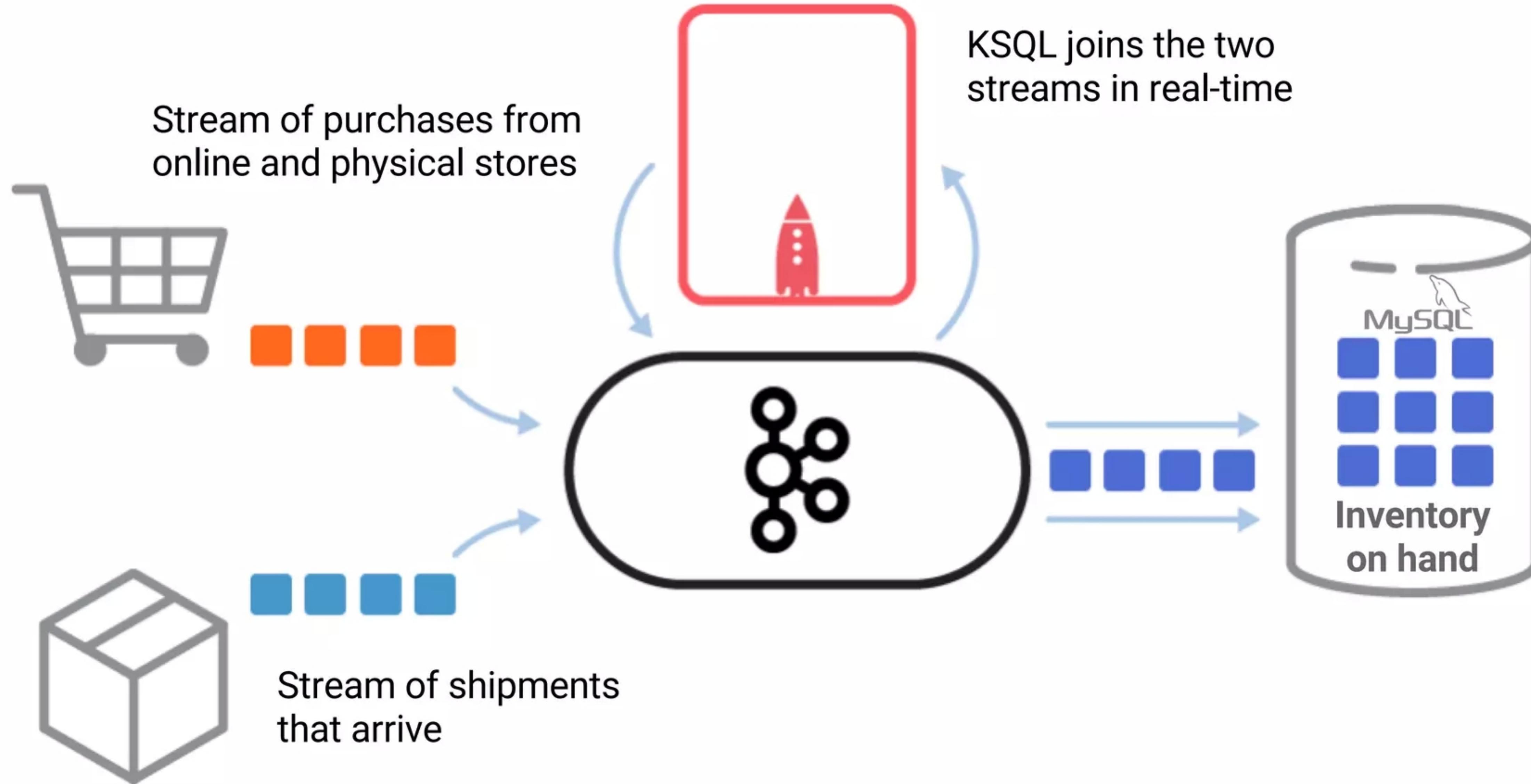
Example: CDC from DB via Kafka to Elastic



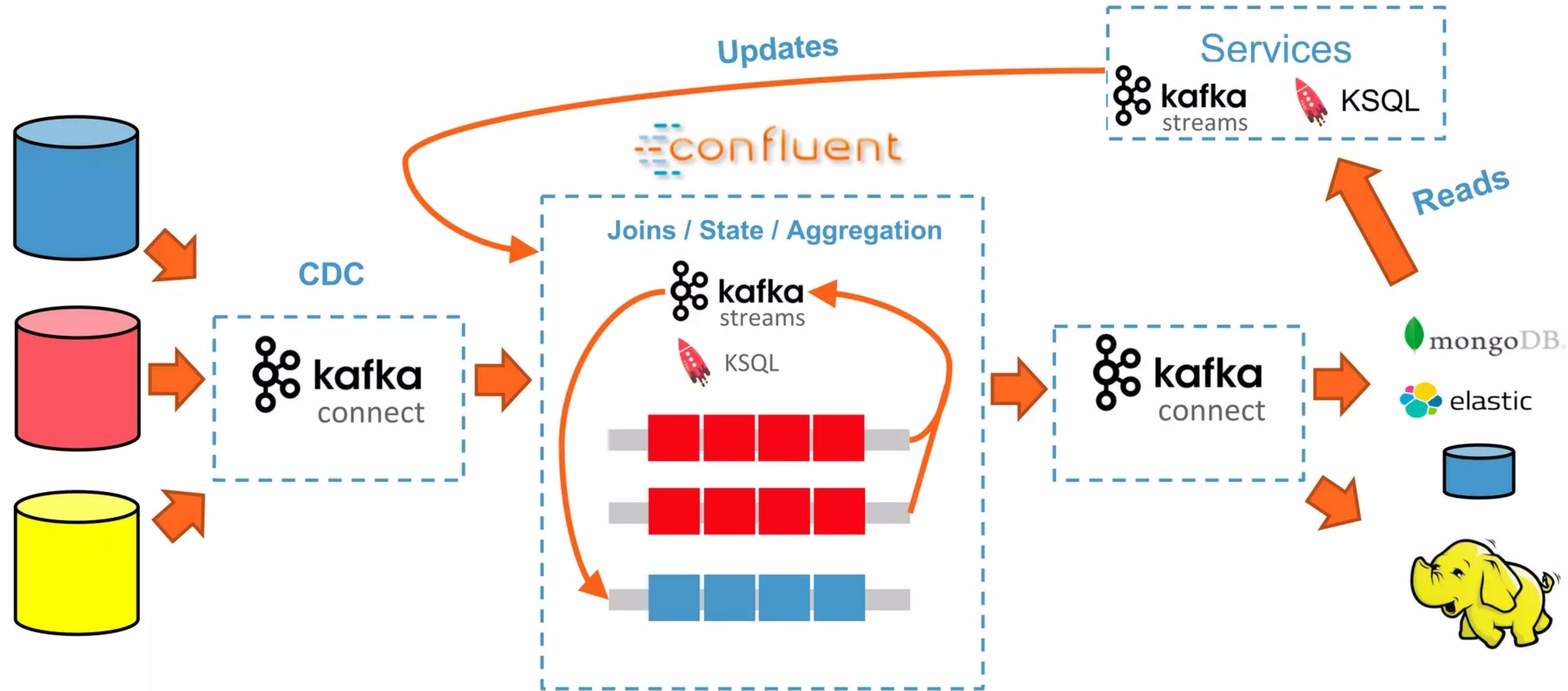
Example: IoT, Automotive, Connected Cars



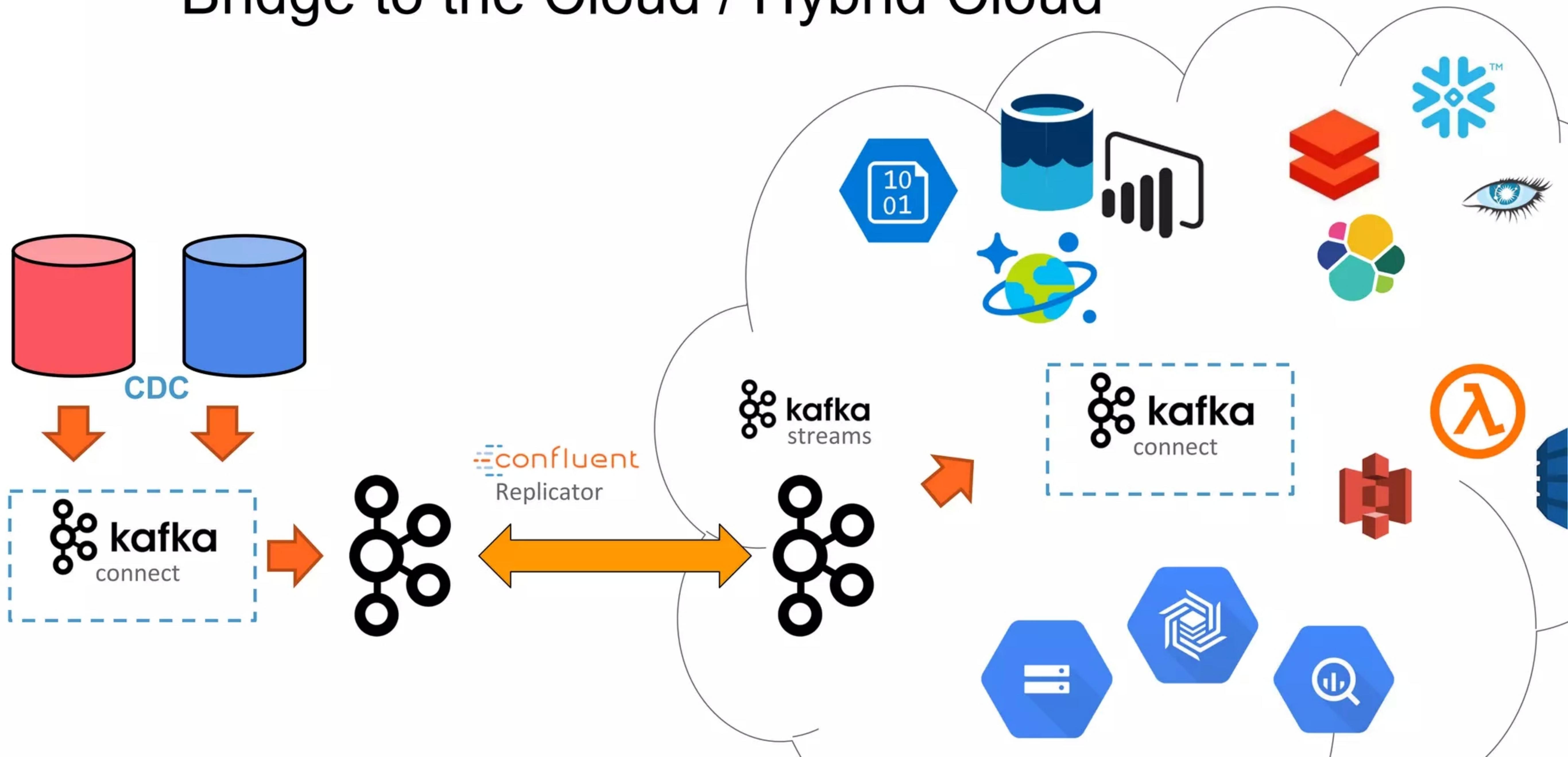
Example: Retail



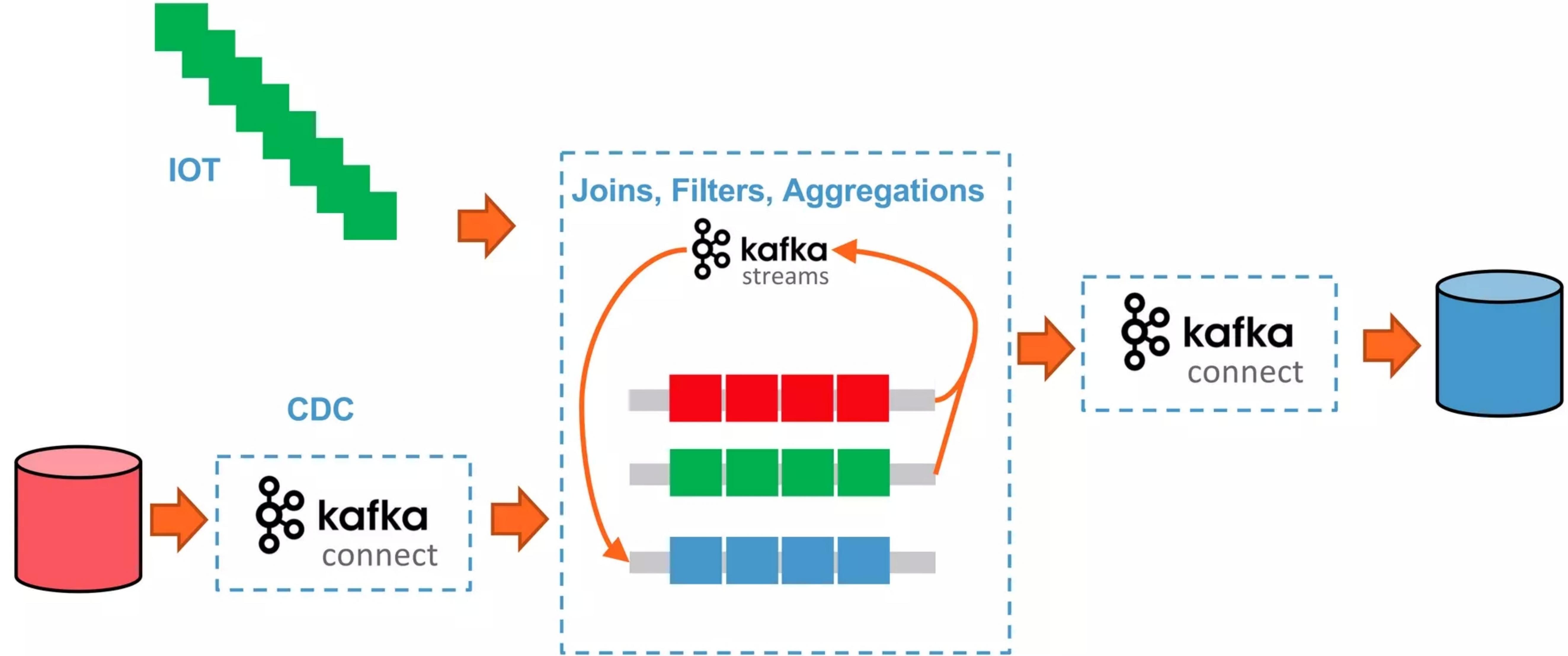
Modern Data Architecture



Bridge to the Cloud / Hybrid Cloud



Use Case – IOT Event Enrichment



Use Case – Log Management

