

# Real-Time Analytics: Going beyond stream processing with Apache Pinot

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# What is Real-Time Analytics?

Real-time analytics is the discipline that applies logic and mathematics to data to **provide insights for making better decisions quickly**.

**Gartner**<sup>®</sup>

**Events -> Insight -> Action**



**Events**

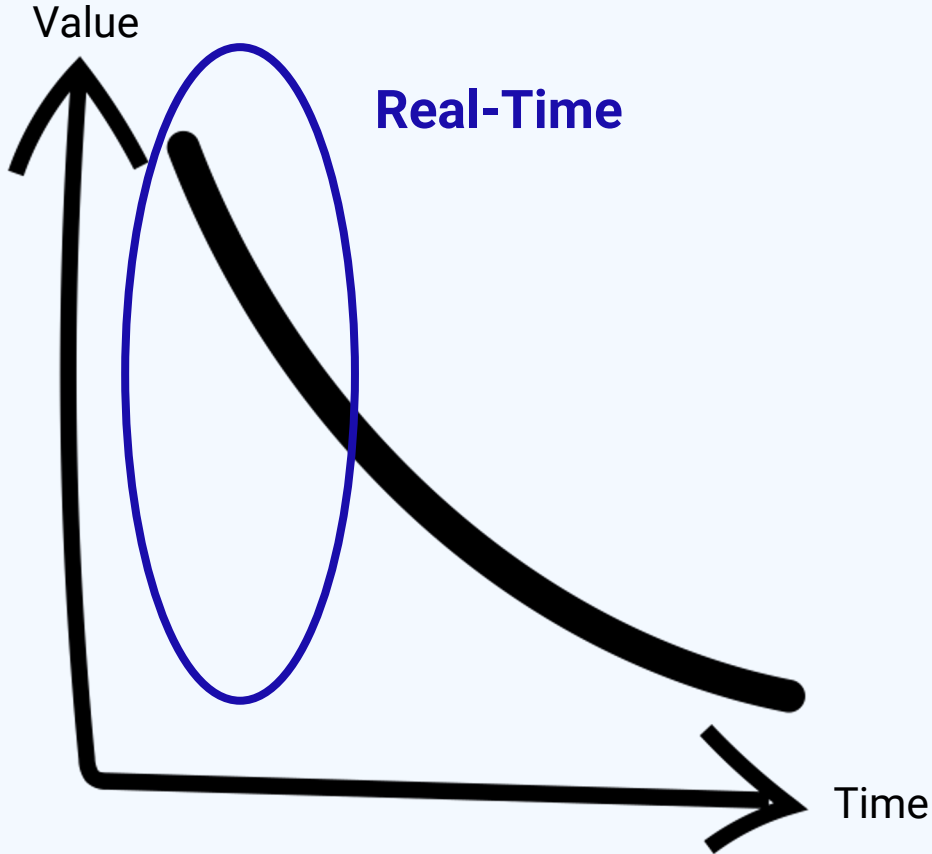


**Insight**



**Action**

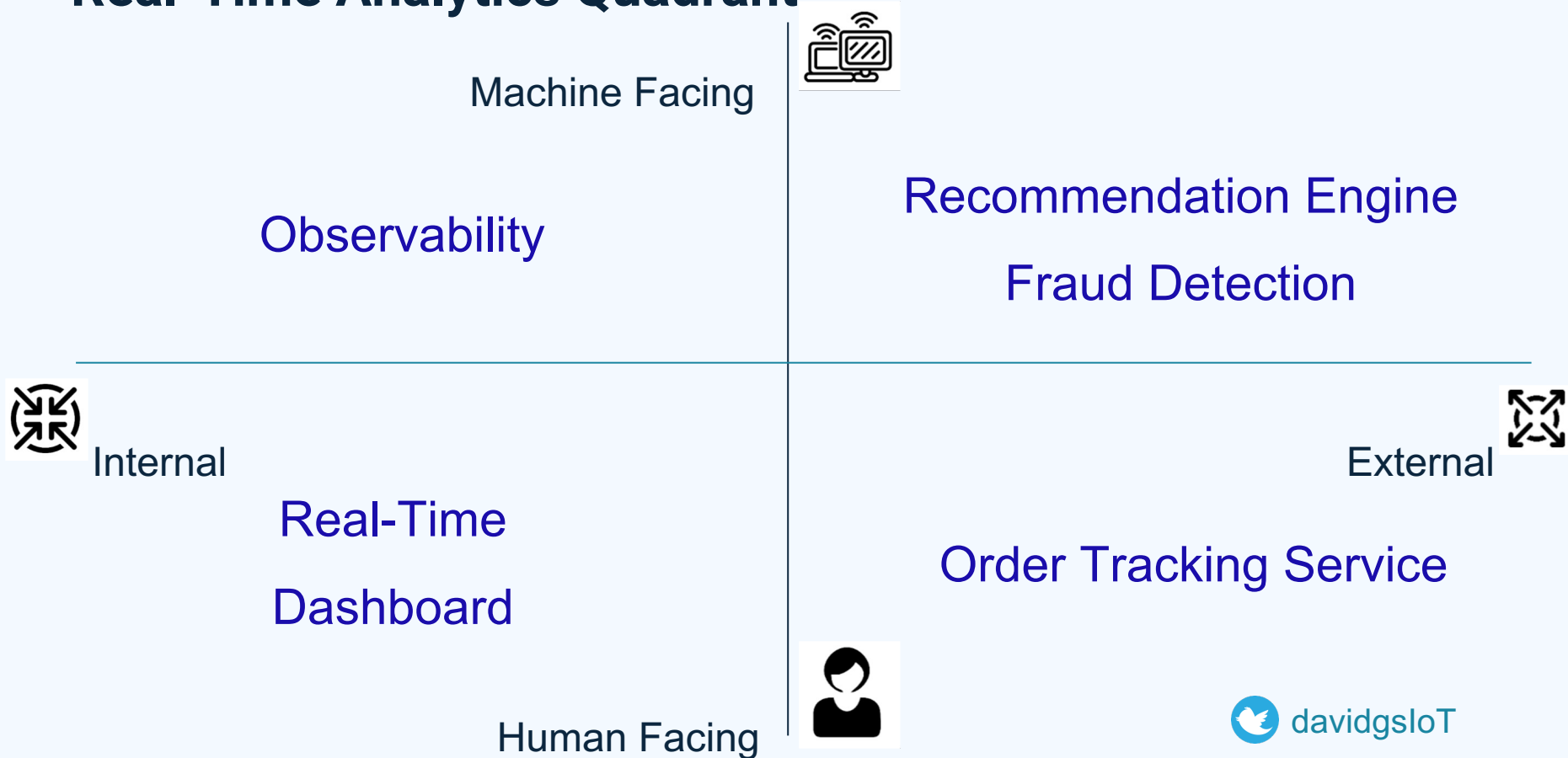
# The value of data over time



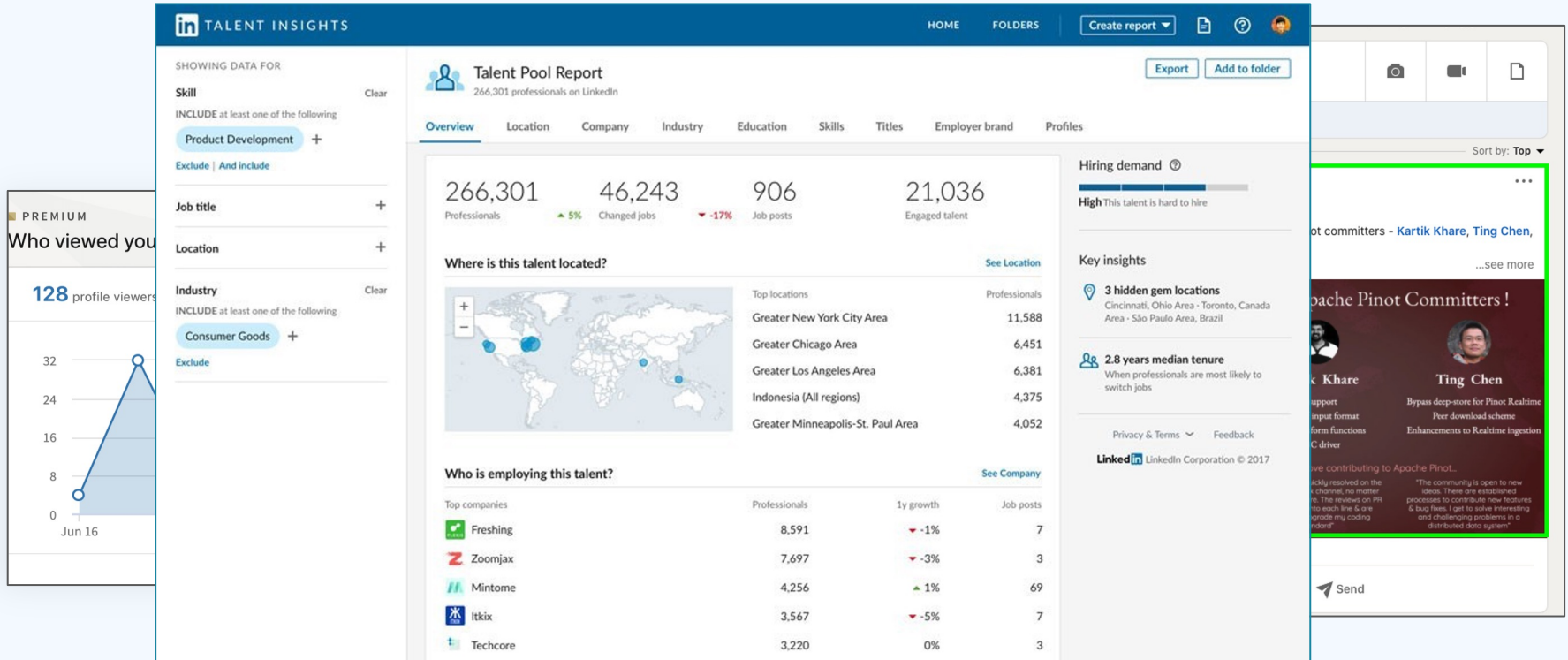
Who's interested in this data?

- Analysts
- Management
- Users

# Real-Time Analytics Quadrant

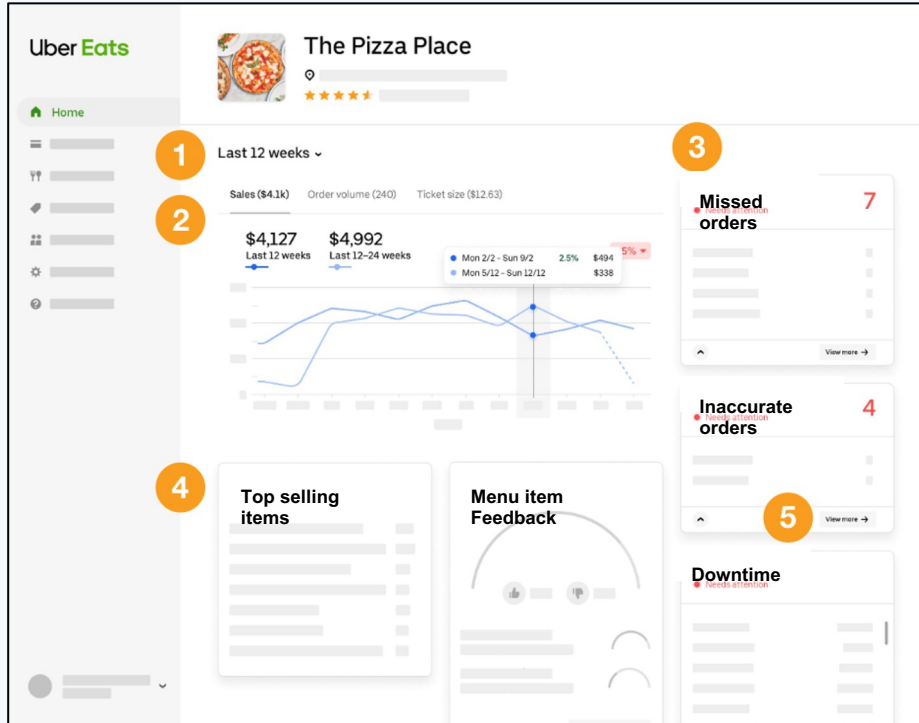


# Examples of Real-Time Analytics



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## Uber Eats



Total users	500,000+
QPS	100s
Latency SLA	< 100 ms p99th
Freshness	Seconds - Minutes

# Examples of Real-Time Analytics

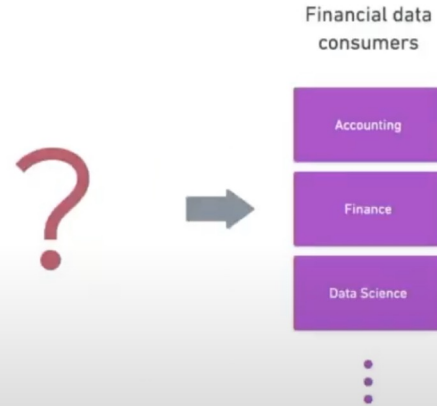
Stripe's Real-Time Analytics Landscape

## Unique Challenges and Opportunities

- High precision/accuracy requirements
  - Aggregations must be exact
  - Many small-unit transactions plus small currency units vary
- Transactional-level granularity
- Reports must be reproducible
- Frequent manual action required
- Strict Compliance & Security Requirements
  - Regulators and auditors are an end-customer

stripe

... solving?

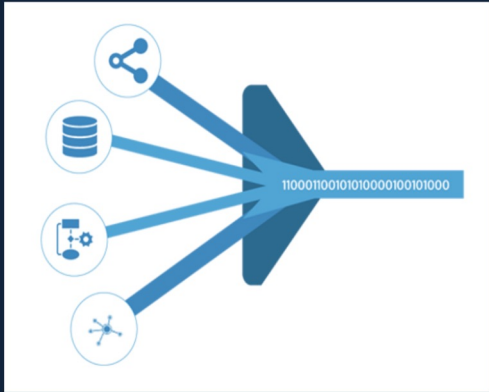


Source:  
Peter Bakkum, Engineering Manager @Stripe Financial

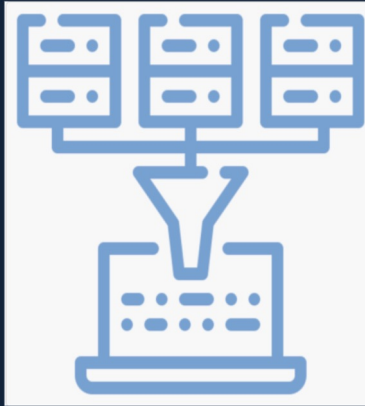


# Properties of Real-Time Analytics Systems

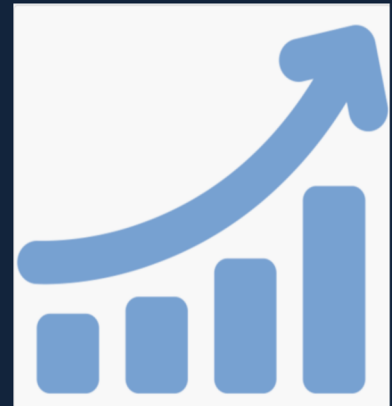
## Speed of Ingestion



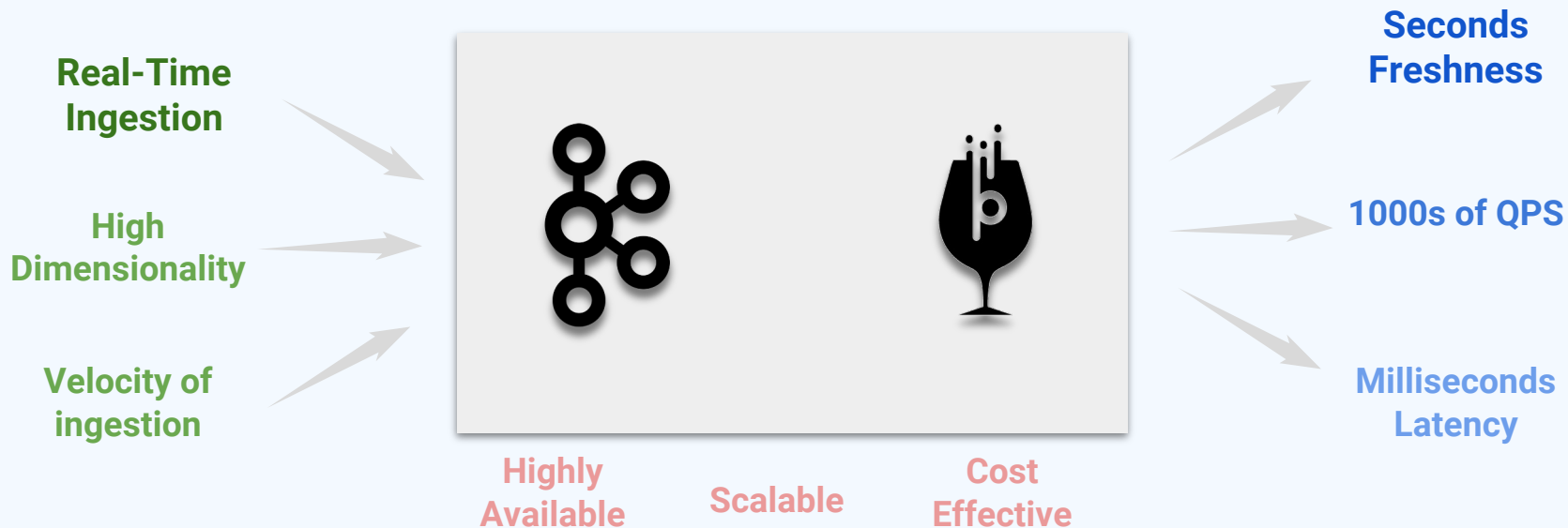
## Speed of Queries



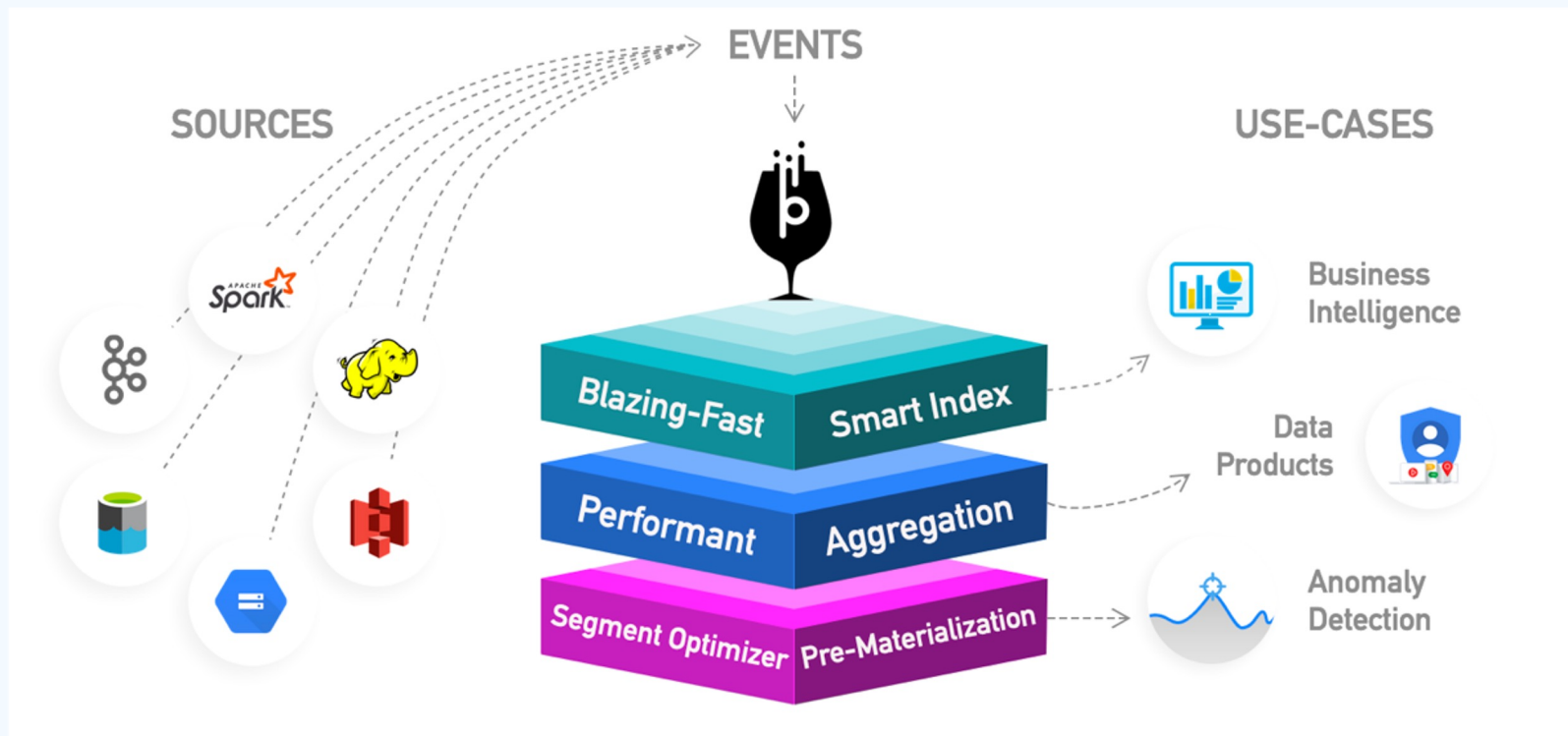
## Scalability



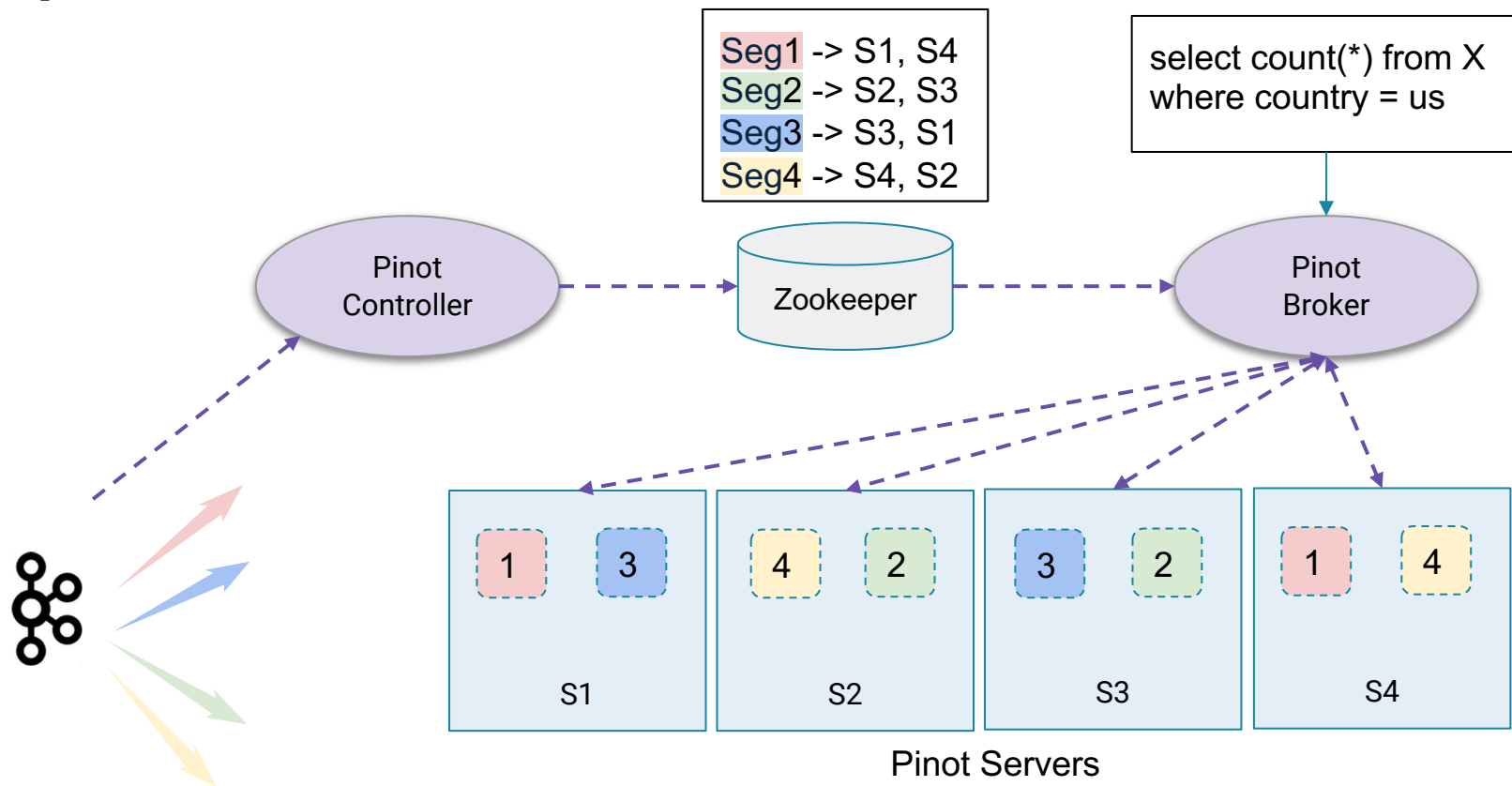
# Building a User-facing Real-Time Analytics System



# What is Apache Pinot?



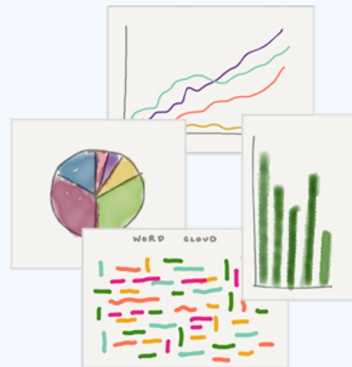
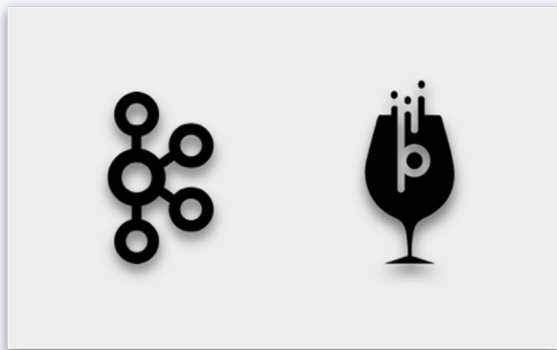
# Apache Pinot Architecture



**<insert any user-facing real-time analytics use case here>**



Events



Realtime  
Analytics

**Simply point Pinot to  
Kafka,  
and query!**

# Powered by Apache Pinot

## Community

**100+**

Companies

**2400+**

Slack Users

**3.9k**

Github Stars

## Performance

**1M+**

Events/sec

**200k+**

Peak QPS

**ms**

Query Latency



[pinot.apache.org](https://pinot.apache.org)



# Takeaways

- Real-time analytics lets us create applications that give users actionable insights
- Properties of these systems: Fresh data, fast querying, at scale
- Kafka + Pinot is the perfect combination to achieve this

# Thank you!

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