



How-to for real-time streaming and analytics at scale with Apache Kafka and Apache Ignite

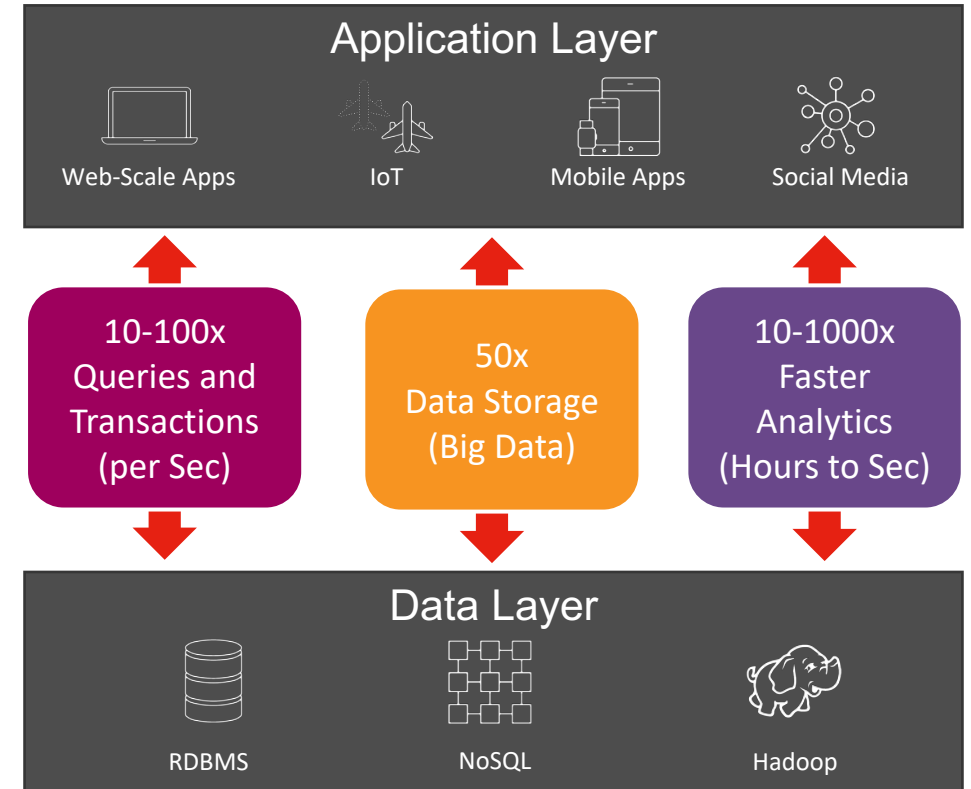
Viktor Gamov, Confluent, @gamussa

Denis Magda, GridGain, @denismagda

Digital Transformations Challenges



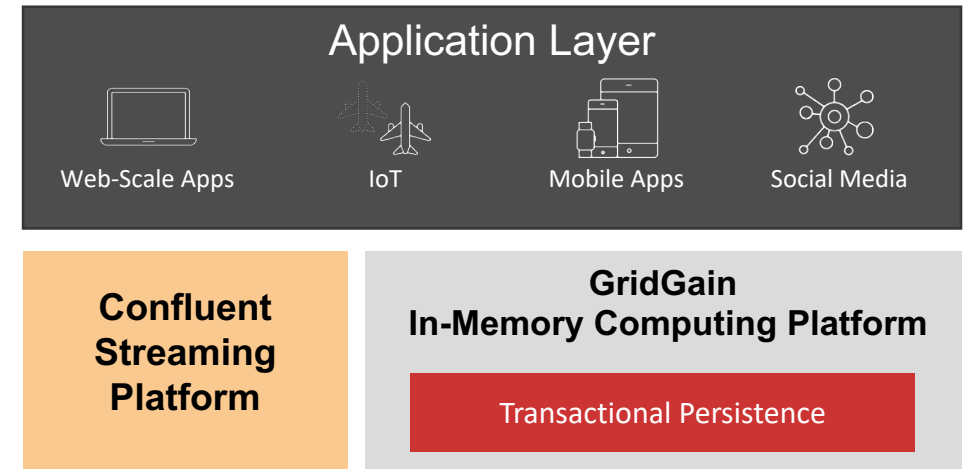
- 10-100x more queries and transactions
- 50x as much data today as a decade ago
- Overnight analytics becomes real-time



In-Memory Computing and Real-Time Streaming To Solve the Challenges



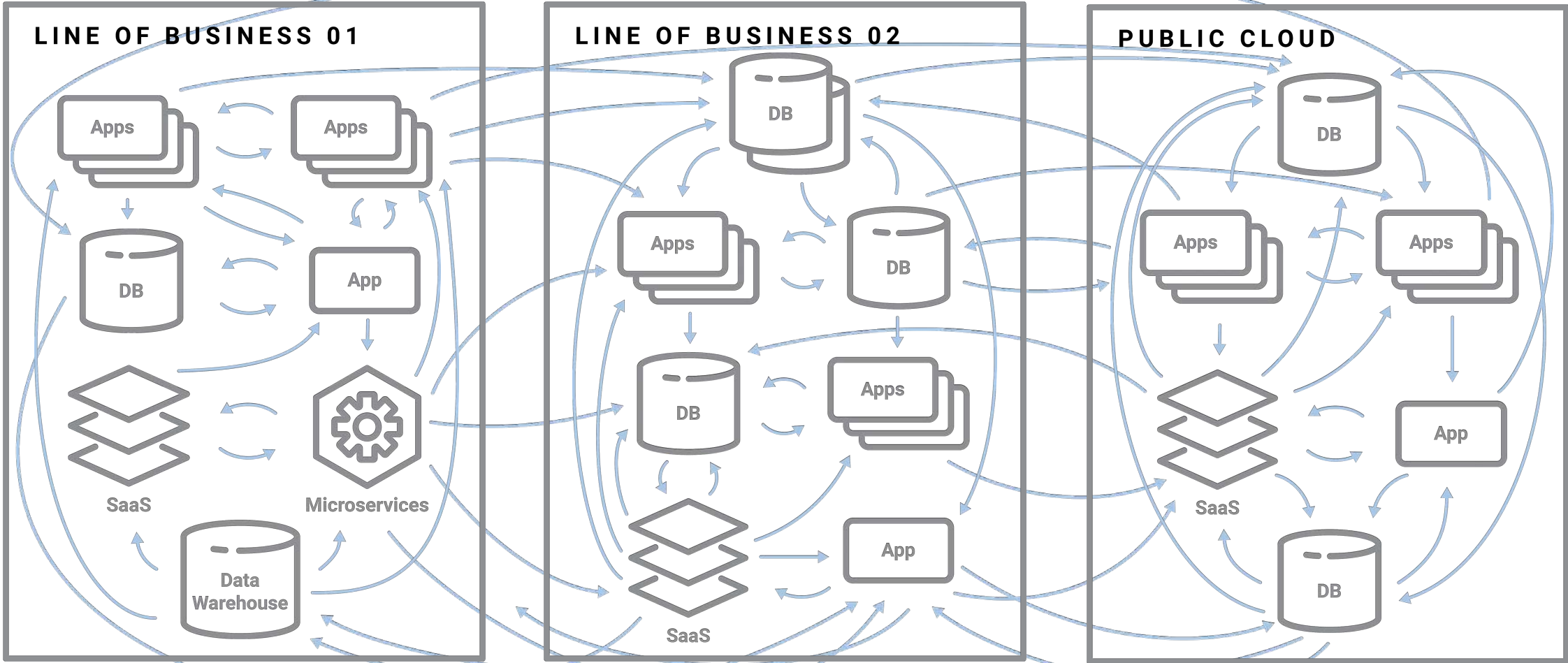
- Performance Increases 10x to 1,000x
- Act faster by analyzing streams of data
- Scalability up to petabytes of data



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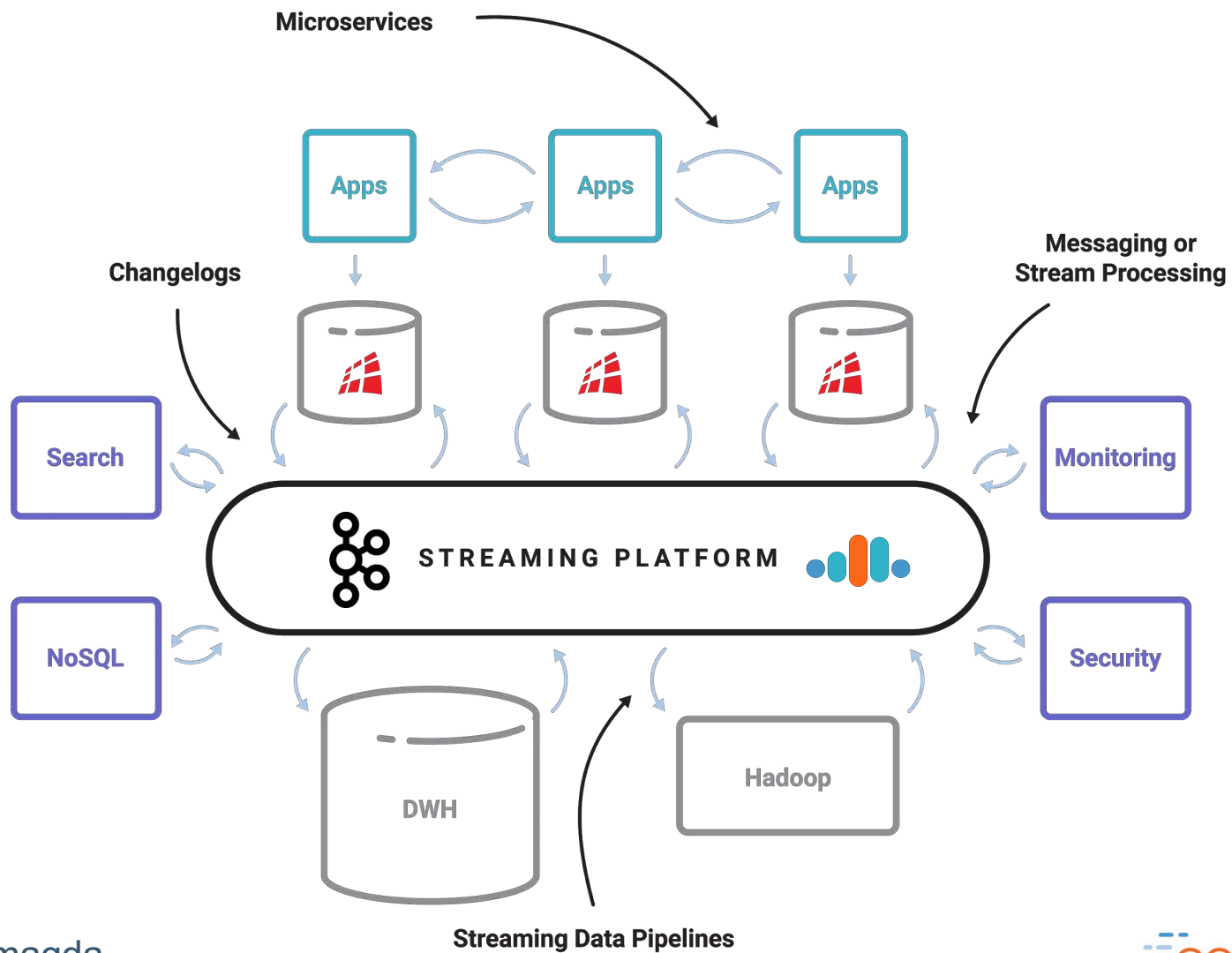
Pre-Streaming Era



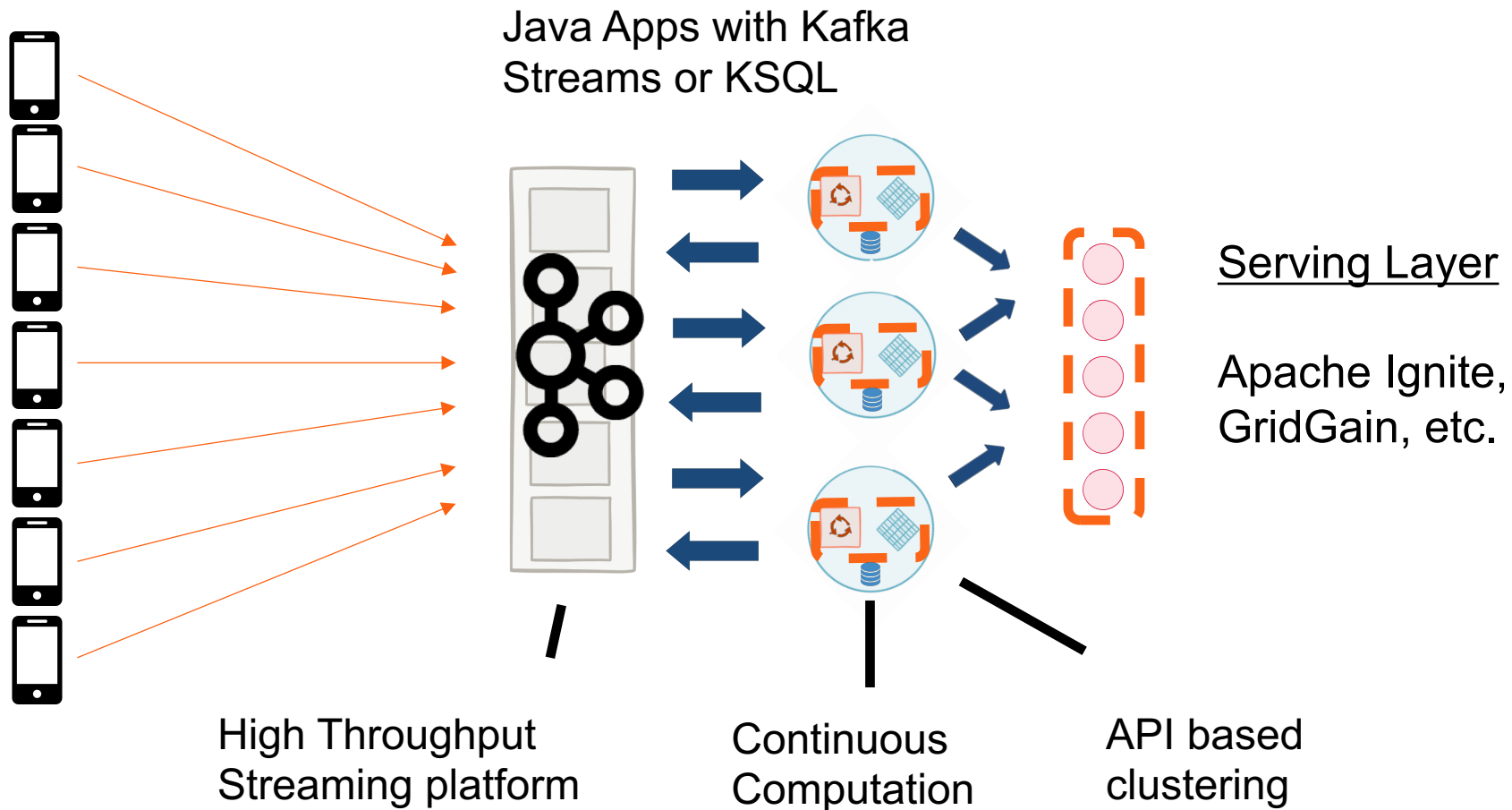
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Streaming-First Workd

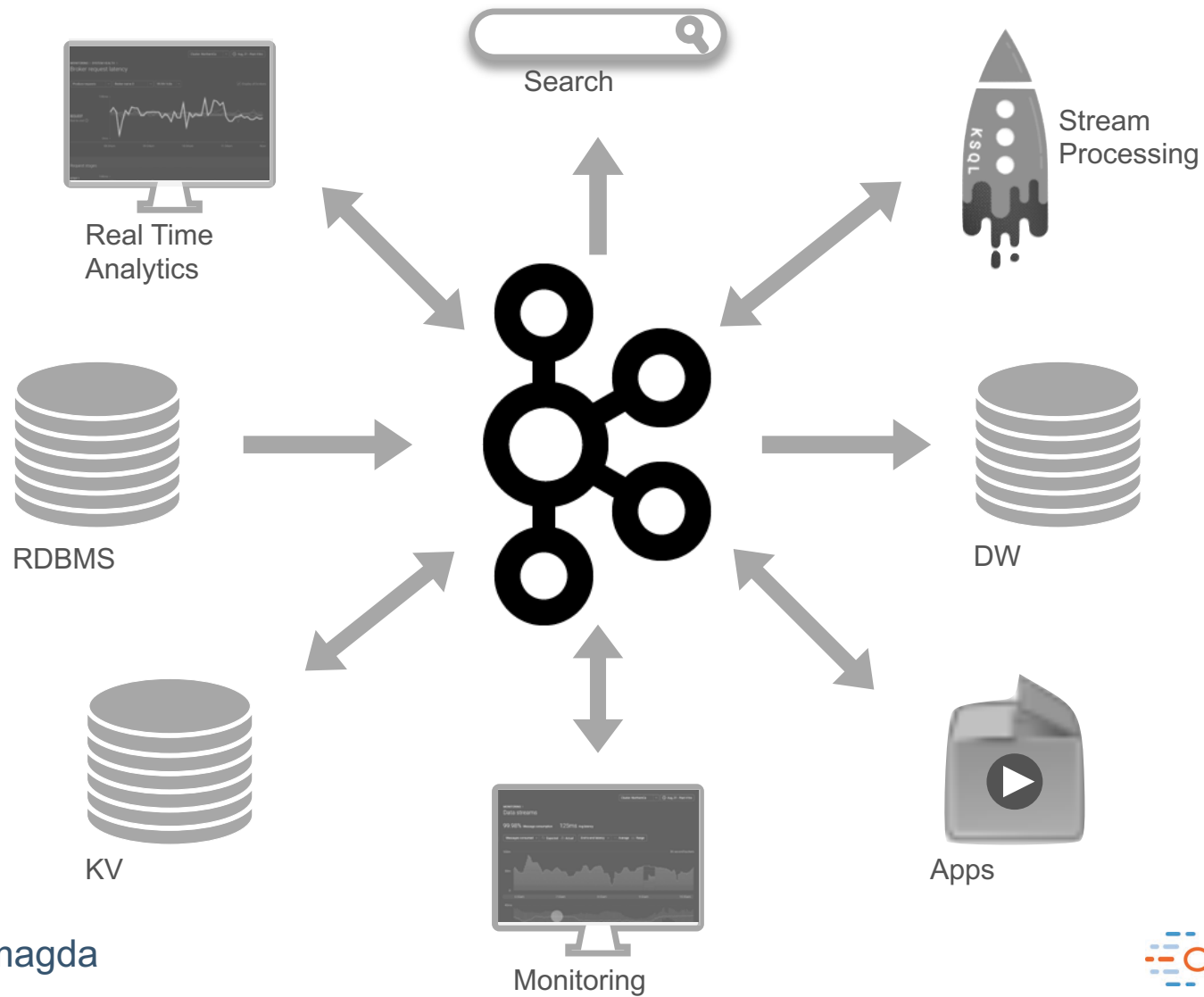


Origins in Streams Processing



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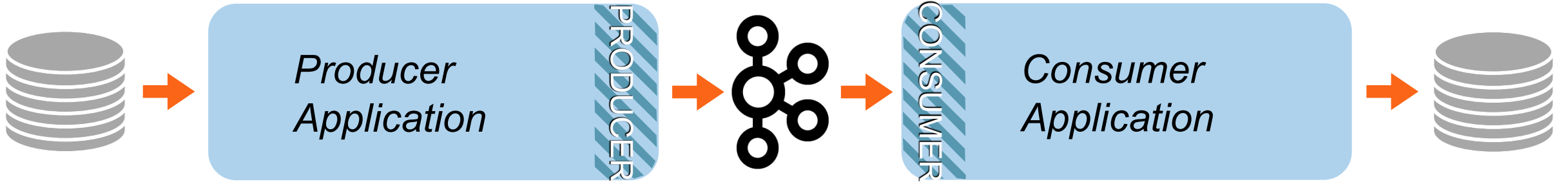




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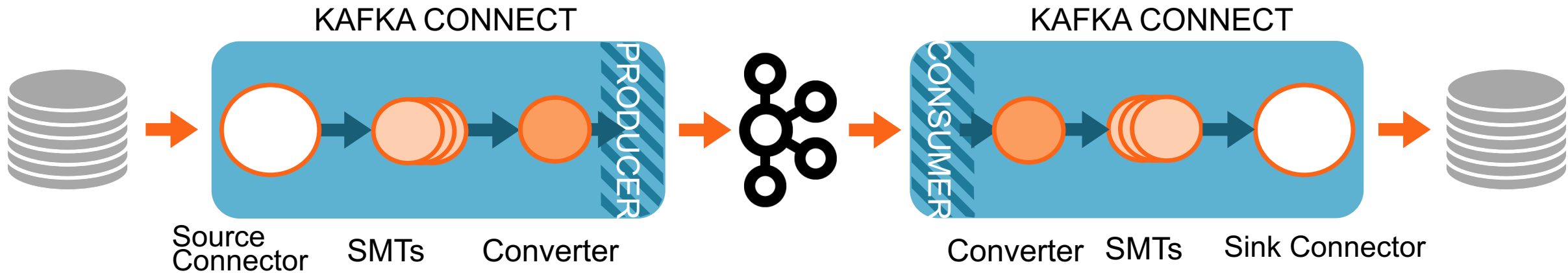




- Where to restart ?
- How to scale and parallelize ?
- What metrics to capture ?

- How to handle failure & retries ?
- How to properly use the producer / consumer API ?





- Offset management
- Elastic scalability
- Parallelization

- Task distribution
- Metrics
- Failure & retries

- Configuration management
- REST API
- Schemas & data types



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✓ Discover connectors, SMTs, and converters

The screenshot shows a web browser window at <https://www.confluent.io/hub/>. The page features the Confluent logo and navigation links for Product, Cloud, Developers, Blog, and Docs. A prominent orange 'Download' button is visible. The main heading reads 'CONFLUENT HUB Discover and share Connectors and more'. A search bar contains the text 'gridgain'. Below the search bar, there are filter tabs for 'All', 'Verified', 'Sources', 'Sinks', and 'Community'. A search result card is displayed, featuring a 'Verified Gold' badge, the GridGain logo, the title 'Ignite Connector', the name 'GridGain', and a 'Read More' link.



- ✓ Discover connectors, SMTs, and converters
- ✓ Descriptions, licensing, support, and more

Verified Gold

GridGain

VERSION
8.7.5

FEATURES

- ✓ Single Message Transforms
- ✓ Control Center Integration
- ✓ Connect API

TAGS
Database In-memory

Ignite Connector

by GridGain

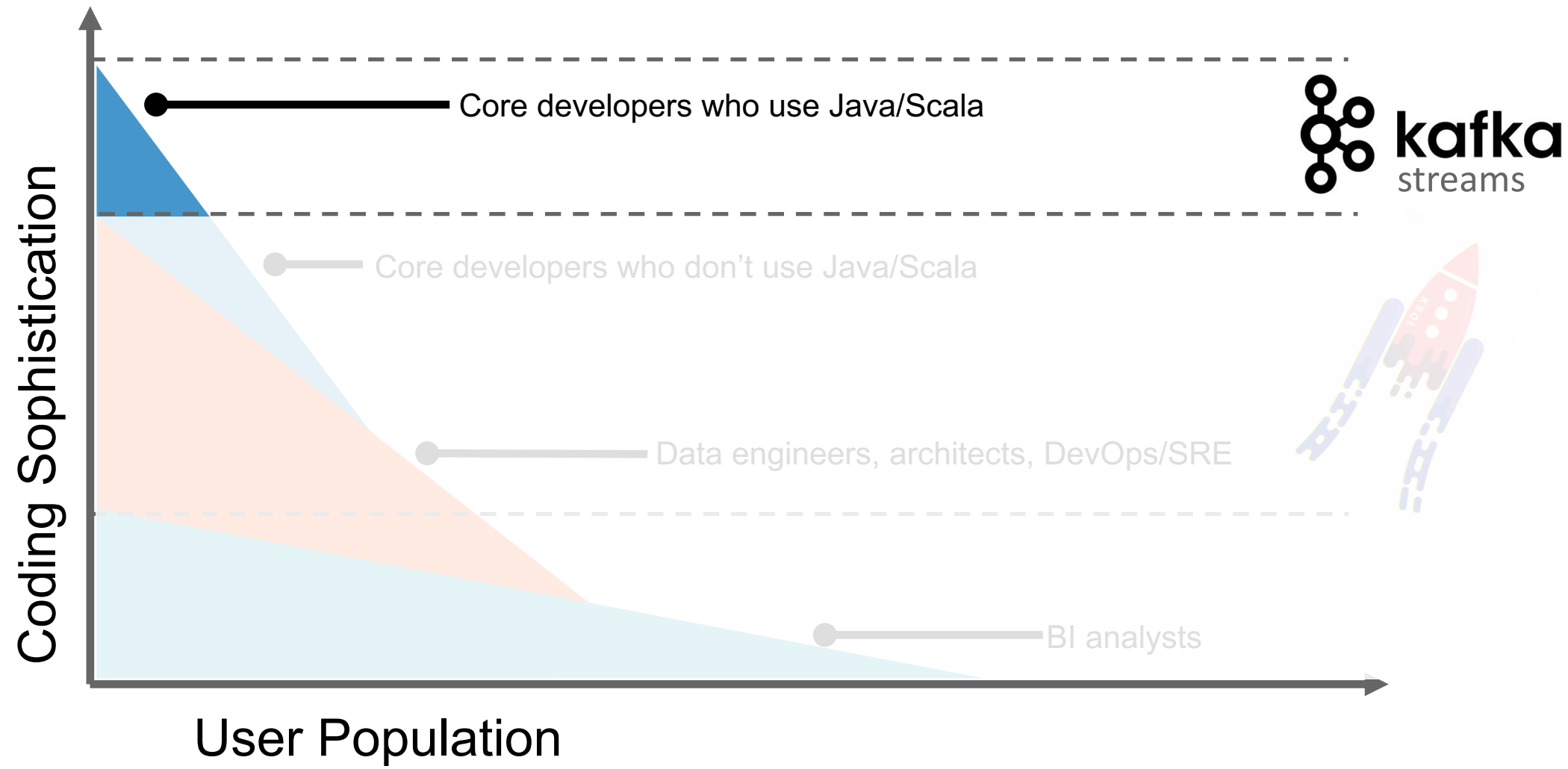
`gridgain/ignite-connector:8.7.5`

kafka-connect-gridgain is a Kafka Connect plugin for transferring data between GridGain cluster and Kafka. It includes a Source connector for publishing GridGain caches updates to Kafka topics, as well as a Sink connector that subscribes to one or more Kafka topics and writes the messages to GridGain caches..

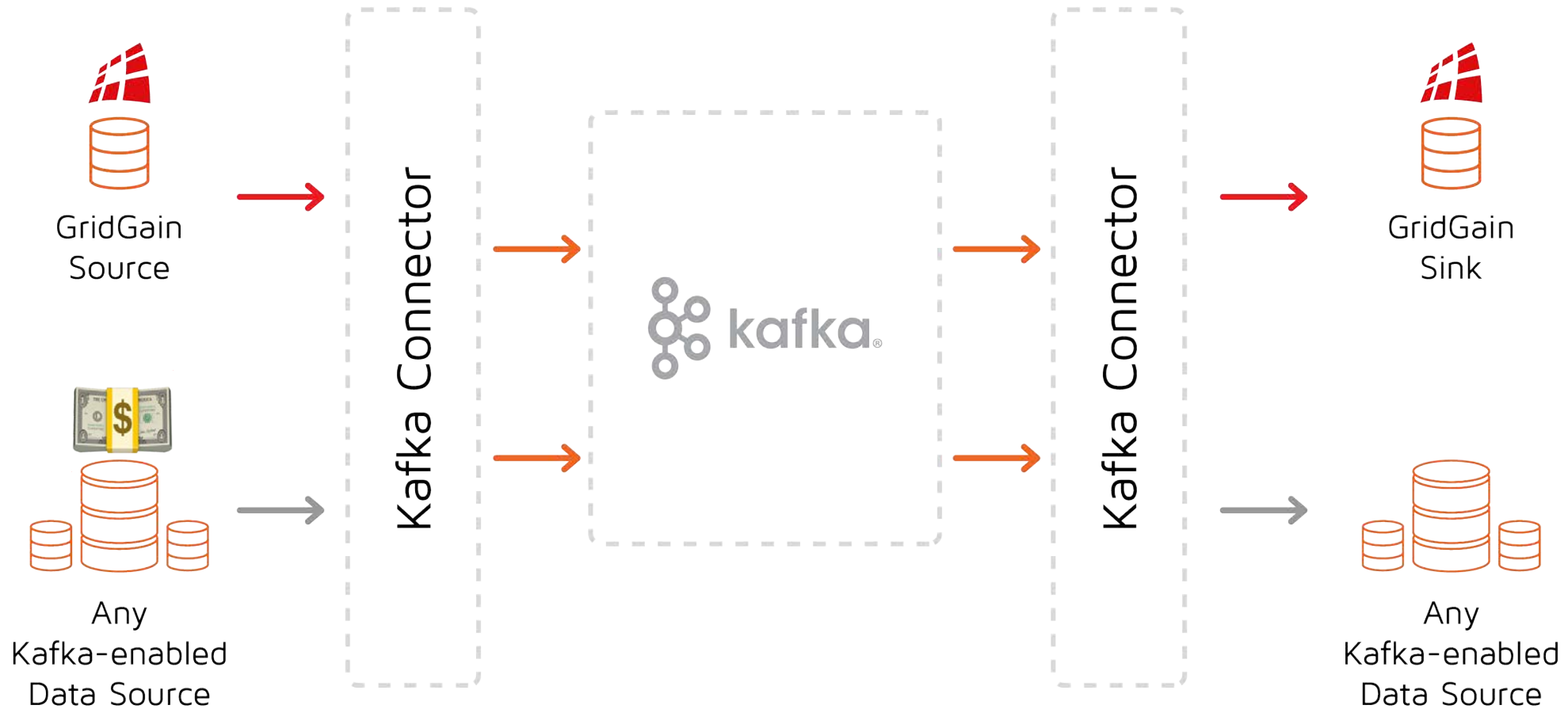
Installation Source Documentation Support Licensing

Contact [GridGain](#) for more details about installing this component.

Lower the Bar to Enter the World



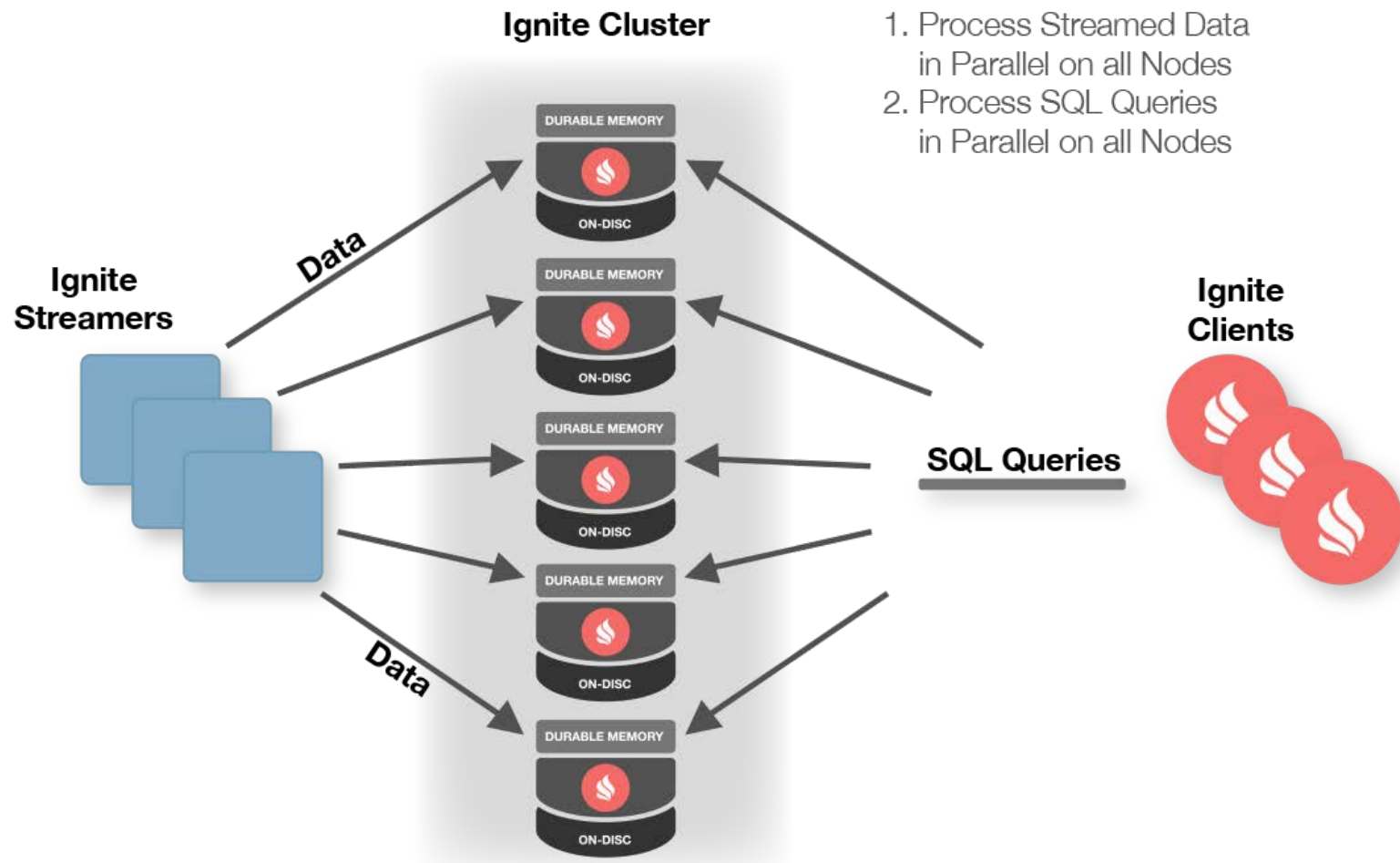
GridGain and Kafka Connect



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GridGain: Real-time Streaming and Analytics



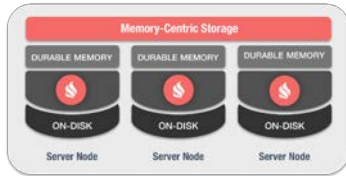
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Essential GridGain APIs

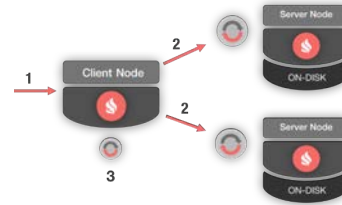


Distributed memory-centric storage



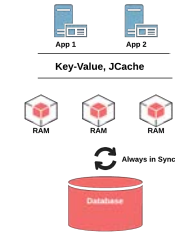
Combines the performance and scale of in-memory computing together with the disk durability and strong consistency in one system

Co-located Computations



Brings the computations to the servers where the data actually resides, eliminating need to move data over the network

Distributed Key-Value



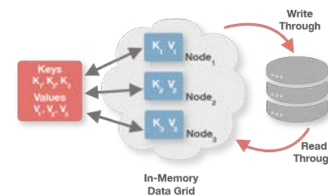
Read, write and transact with fast key-value APIs

Distributed SQL



Horizontally, fault-tolerant distributed SQL database that treats memory and disk as active storage tiers

ACID Transactions



Supports distributed ACID transactions for key-value as well as SQL operations

Machine and Deep Learning



Set of simple, scalable and efficient tools that allow building predictive machine learning models without costly data transfers (ETL)



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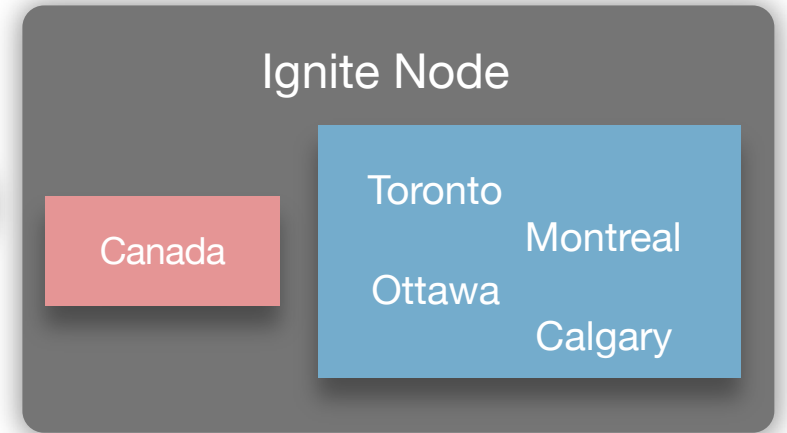
GridGain SQL For Real-Time Analytics



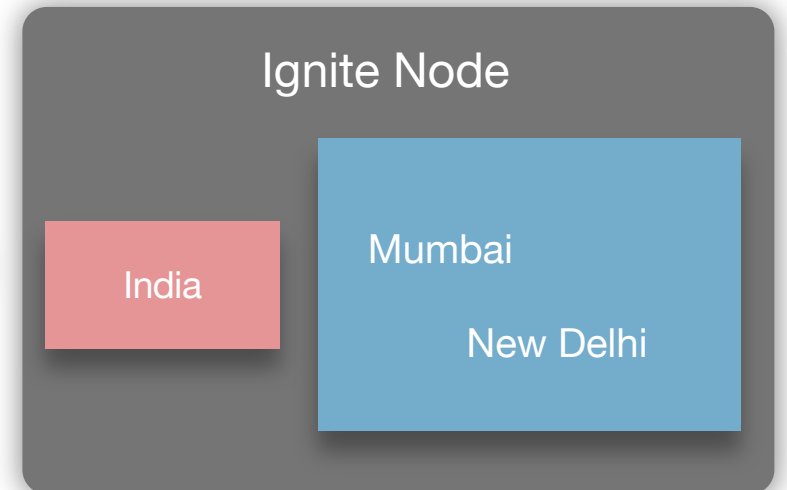
1

```
SELECT ct.name, count(c.name)
FROM Country as ct
JOIN City as c ON c.countryCode = ct.code
WHERE ct.name IN ('Canada', 'India') GROUP BY (ct.name);
```

2



2



3

1. Initial Query
2. Query execution over local data
3. Reduce multiple results in one



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Demo



Q&A

