

STREAMING + TRANSACTIONAL ANALYSIS FOR DIGITAL TRANSFORMATION

Highlights

- Expanding the “frame of data” that is processed in real-time by joining stream data from Spark with transactional data from Aerospike
- Lower TCO for real-time analytics by operating on larger datasets yet with a smaller cluster footprint
- Gain closed-loop business insights by operating on both transactional and stream datasets
- Rapidly develop using Spark libraries - no additional skill set required
- Accelerate business insights by enabling decisions in seconds as opposed to hours or days

Enterprise-grade add-on to Aerospike enabling actionable insights for streaming and transactional data

In the world of Digital, AI, IoT and the Algorithmic economy – data and real-time insights have gained paramount importance within enterprises going through a digital transformation. Real-time, actionable, “in-the-moment” insights drive better decisions – all in a split second. These can greatly improve customer experience (CX), operational efficiency and support new business models.

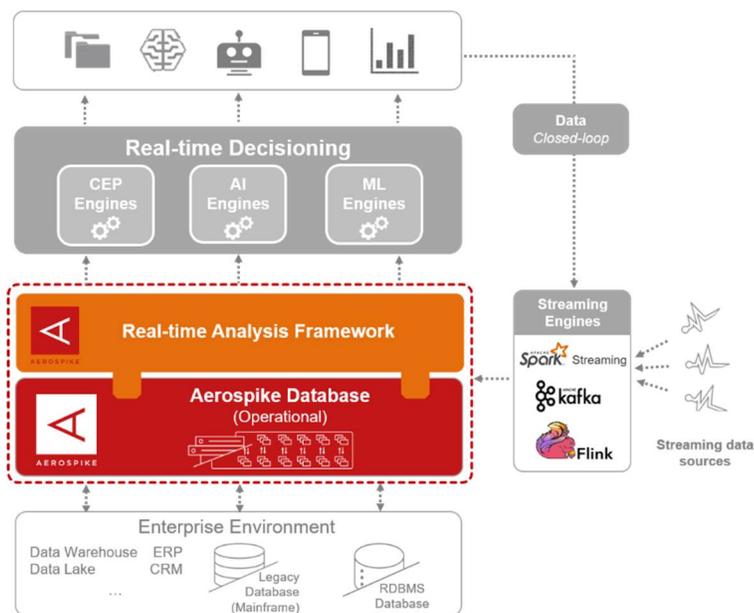
Actionable insights are derived from analysis and decisioning based on data from both the transactional and streaming data workloads. While stream data analysis is derived from high-velocity data, transactional data analysis is typically derived from low-velocity data from larger data stores. Traditionally, enterprises dealt with this challenge by using an assortment of disparate products / components. This adds complexity and cost for both operations and developers. The related technical challenges grow significantly as data volumes and transaction loads increase. Determining the “next best action” in real-time is often a key element of any Digital Transformation. Building such systems can push the limits of legacy technology, drive up costs and swamp developer and operations teams.

A real-time transactional-analysis system needs to combine transactional and streaming data in a single high-performance database that can operate faster than the inbound data streams in. It also needs to work with various analysis frameworks including artificial intelligence and machine learning (AI/ML) systems and toolsets.

Streaming Engine + High Performance Database = Real-Time Decisioning

Real-time decisioning systems must consider both streaming data and historical transaction data to provide valuable results. Most streaming engines operate in-memory and hence tend to operate on a limited ‘frame of data’ as the cost of loading all data in memory outweighs the results obtained.

The Aerospike Real-time Analysis Framework (Aerospike RAF) addresses this challenge. It combines streaming data with a high-performance database to create a join to the transactional data. This enables real-time decisioning and insights. Examples include anomaly detection for fraud in Payments, programmatic targeting in AdTech and failure detection in the case of IoT.



Existing solutions have complexity

In the new age for digital enterprises, there are typically multiple systems that are combined for transactional + streaming analysis:

- **Streaming** - CEP engines/Spark and/or Kafka
- **Transaction store** - Hadoop and/or Cassandra + cache(s)
- **Analysis processing/predictive analysis** - Spark and/or a traditional OLAP engine

Aerospike Real-time Analysis Framework Capabilities

Aerospike RAF leverages Apache Spark (streaming engine) and Aerospike to:

- Load Aerospike data into Spark streaming engine for processing
- Join stream data with Aerospike transactional data using keys of interest from the stream data – greatly expanding the “frame of data” that is processed in real-time.
- Enable analysis and AI/ML processing on joined data

Benefits

- Lower TCO for real-time analytics by operating on larger datasets yet with a smaller cluster footprint
- Gain closed-loop business insights by operating on both transactional and stream datasets
- Rapidly develop using Spark libraries - no additional skill set required
- Accelerate business insights by enabling decisions in seconds as opposed to hours or days

Typical use cases

- **Financial Services & FinTech:** Real-time fraud prevention, trading risk computation, operational risk monitoring, real-time lending, robot advisory
- **e-commerce, Retail and CPG:** Personalized recommendations, real-time targeting, dynamic price optimization
- **Telecommunications:** Intelligent CSR management, churn reduction, real-time network strength monitoring
- **Industrial Internet:** Detect issues in real-time, asset management and safety, predictive maintenance, etc.
- **Logistics:** Real-time asset tracking
- **AdTech:** Real-time bot intrusion detection, Anomalies in CTR

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About Aerospike

Aerospike is the world's leading enterprise-grade, internet scale, key-value database whose patented Hybrid Memory Architecture™ enables digital transformation by powering real-time, mission critical applications and analysis. Only Aerospike delivers strong consistency, predictable high performance and low TCO with linear scalability. Serving the financial services, banking, telecommunications, technology, retail/e-commerce, adtech/martech and gaming industries, Aerospike has proven customer deployments with zero downtime for seven years running. Recognized by industry analysts as a visionary and leader, Aerospike customers include Nielsen, Williams Sonoma, Kayak, Neustar, Bharti Airtel, ThreatMetrix, InMobi, Applovin and AppNexus. Aerospike is based in Mountain View, CA, and is backed by New Enterprise Associates, Alsop Louie Partners, Eastwood Capital Partners, CNTP and Silicon Valley Bank.

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