

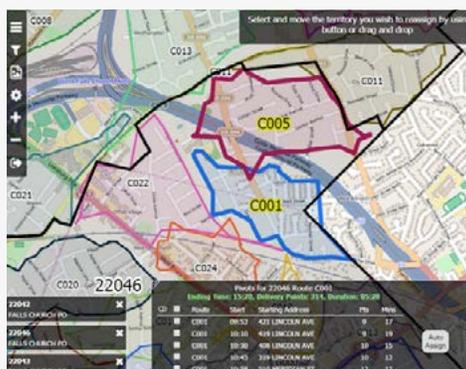
CONNECT, COMMUNICATE, AND ACT ON STREAMING IoT DATA WITH KINETICA

Why Kinetica?

- **Better Performance:** 100X faster performance on 1/10th the hardware than CPU constrained databases
- **In-database analytics:** Machine Learning, Deep Learning, NLP, OLAP, and custom analytics
- **Native support** for geospatial and time-series data and analytics
- **APIs and connectors** for integration, interoperability, and extensibility
- **Enterprise-grade:** Familiar, standards-based relational database with security, high-availability, and minimized administration

US Postal Services uses Kinetica for real-time fleet management

USPS, the world's largest logistics organization, relies on Kinetica to optimize the operations of its 200K vehicles and employees, using visualizations and analytics of real-time data to more efficiently deliver goods to more than 154 million addresses across the US. The complexities and dynamics of USPS' logistics have reached all-time highs. USPS implemented Kinetica, which merges traditional query needs with the scalability demands of the modern IoT-centric enterprise, to address this challenge. USPS runs Kinetica as a 70TB in-memory database in a load balanced, distributed, multi-rack environment spanning numerous datacenters, supporting 15K concurrent daily users and ingesting data from more than 200K scan devices.



Internet of Things (IoT) offers tremendous opportunities for connected devices, autonomous vehicles, offshore oil rigs, and field-deployed assets to connect, communicate, and act intelligently. Data gathered from connected devices can be enriched with public and proprietary data such as weather, traffic, social media, and consumer preferences to detect patterns and anomalies, and build reliable and efficient products and services.

The challenge is that managing fast-moving IoT data with traditional data and analytics systems often means dealing with 'old' and limited data, complex and specialized systems, high latency, and exorbitant costs. The solution to these challenges is Kinetica's GPU-accelerated, in-memory analytics database, which enables enterprises to sense, understand, and respond to fast-moving IoT data in milliseconds. Leading retailers, utilities, logistics, and public sector organizations use Kinetica for IoT data and analytics to find efficiencies, improve reliability, reduce costs, and discover new sources of revenue.

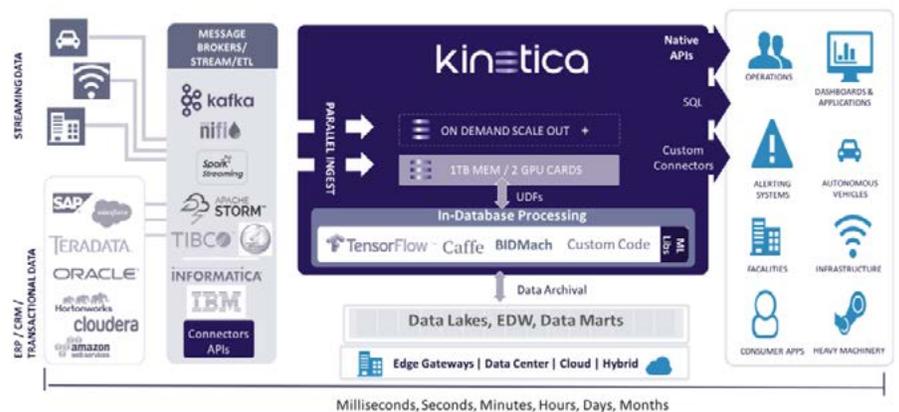
LOW LATENCY DATABASE IS PERFECTLY SUITED FOR IOT DATA AND ANALYTICS

Kinetica is the fastest, GPU-accelerated, in-memory analytics database that delivers real-time response to queries on streaming IoT data: 100x faster performance at 1/10 of the hardware of traditional databases. Kinetica's enterprise-grade database can be deployed anywhere; on premise, cloud or a hybrid of both. With Kinetica, you can scale up or out linearly to manage and monetize IoT data.

Lightning-fast Query is Ideal for Streaming Data

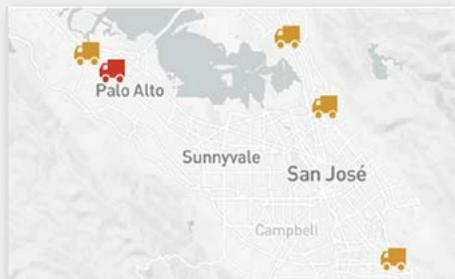
Get results in milliseconds for automated, low-latency actions. IoT systems require real-time analytics on the continuously-moving data in order to discover anomalies and take immediate action. Kinetica's in-memory distributed computing platform leverages the power of modern NVIDIA GPUs, enabling massive parallelization while unlocking the ability to simultaneously ingest, analyze, visualize, and act on fast-moving IoT data. GPU acceleration enables real-time pattern and anomaly detection and fast OLAP without the need for pre-aggregation. Kinetica's APIs and numerous out-of-the-box connectors for databases, business applications, and big data ecosystem components enable parallel ingest, analytics, and egress of continuous IoT data streams for deeper, actionable insights that increase business value.

Kinetica Architecture for IoT Data and Analytics



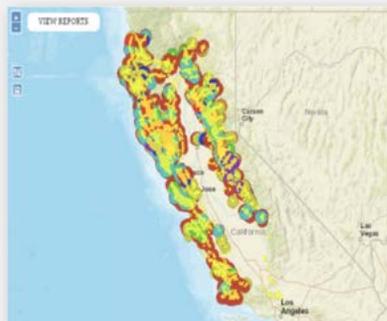
Large retailer leverages Kinetica for just-in-time visibility, notification, and tracking of store deliveries

A large retailer has deployed Kinetica for logistics and transportation management. Store managers and distribution centers now have just-in-time insights to view and track store deliveries. This retailer's 10-node Kinetica system will support over 7,000 trucks delivering over 2.8 million shipments per month.



Large utility deploys Kinetica for smart grid infrastructure management

A large utility serving over 10 million customers uses Kinetica for real-time geospatial analytics to manage the health of millions of assets like gas lines, power lines, and power poles. By doing so, they minimize outages, optimize operations, and quickly resolve disruptions. Kinetica operates as a speed layer with ESRI to monitor, manage, and predict infrastructure health.



Converge AI and BI to Do More with Your IoT Data

IoT data streams create a stream of data that far surpasses legacy systems to store, manage, and act on the data in a timely and cost-effective manner. Enterprises need to employ modern, cognitive techniques such as artificial intelligence and machine learning, to do so. Kinetica's open architecture features in-database analytics with a User-Defined Functions (UDFs) framework to extend database functionality. Developers and data scientists can deploy custom code and advanced machine learning libraries such as TensorFlow, Torch, and Caffe natively in the database to power advanced analytics.

Purpose-built for IoT Data

Kinetica can run as a standalone database or can be integrated with other applications to store, manage, and analyze fast-moving IoT data. Kinetica natively manages time series and geospatial data such as points, shapes, tracks, and labels and provides out-of-the-box geospatial functions such as filters (by area, by series, by geometry), aggregation (histograms), and geofencing triggers. A rich visualization framework further enables interactive real-time data exploration, and the GPU-accelerated rendering of maps with accompanying dashboards facilitates IoT data analytics.

SOLUTIONS FOR IoT DATA AND ANALYTICS

Real-Time Route Optimization Kinetica seamlessly integrates IoT data in motion and at rest from sources such as vehicles, location, sensors, personnel, weather, traffic, and supply/demand data to effectively manage and deploy assets. Operational personnel have point-and-click access to streaming vehicle telematics, traffic, and social media data to discover patterns and anomalies, and act on insights in real time. These insights power IoT applications such as fleet and personnel scheduling, route planning, rerouting, territory optimization, and condition-based equipment maintenance to improve productivity, avoid unplanned downtime, reduce fuel and overtime costs, and improve safety and compliance.

Just-in-Time Inventory Management and Smart Supply Chain Modern IoT systems with sensors, RFID tags, cloud, and mobile apps present a better way to stay on top of changing demand trends and manage the distribution of goods and services in real time. Kinetica provides real-time, location-based insights across the entire supply chain, enabling businesses to better understand demand, manage supply, and track inventory in real time. With Kinetica, store and fleet managers can schedule deliveries, get real-time notifications, and track deliveries to better manage workforce, inventory, and shipments and avoid overstock, spoilage, and stock outs.

Smart Grid Infrastructure Management Public sector agencies, energy exploration/production companies, and utilities must all work together to modernize the infrastructure and improve reliability, efficiency, and security. Kinetica's real-time analytics database brings together fast-moving IoT data from sensors, smart meters, solar panels, and grid infrastructure and provides predictive insights to minimize power outages, reduce storm impacts, and restore service faster when outages occur.

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