

GPU-ACCELERATED DATABASE FOR GOVERNMENT

Mission-Critical Capabilities

- **Low-latency, lightning-fast database:** Ingest, explore, analyze, visualize, and act on large, streaming datasets in milliseconds.
- **Real-time operational analytics,** machine learning, and deep learning for automated insights from large, complex, continuously-moving data from sensors, connected devices, and IoT systems.
- **Scale, security, and flexibility** to meet strict SLAs.

US Army uses Kinetica for real-time threat intelligence

The United States Army Intelligence and Security Command (INSCOM) needed a means to assess terrorist and other national security threats in real time. No database in the market was fast or flexible enough to meet their needs. They selected Kinetica to provide real-time threat intelligence. INSCOM uses Kinetica as an in-memory computational engine for any data with a geospatial or temporal attribute for a major joint cloud initiative within the Intelligence Community (IC ITE). With Kinetica, intelligence analysts can now conduct near real-time analytics and fuse streaming big data feeds from drones, mobile devices, social media, and web and visualize those feeds in a web browser. Kinetica is used to ingest 200+ sources of streaming data, producing 200B new records per day. This project was the first time in history that military analysts could query and visualize billions to trillions of near real-time objects in a production environment. In this instance, 42 servers of a leading database were replaced with a single Kinetica server with queries down from 92 minutes to less than a second— 42x lower space, 28x lower cost, 38X lower power cost.

From national security and defense, to connected cities and improved public services— new opportunities are arising for public sector agencies to leverage data and analytics to deliver better quality services and improve citizenry experience. Kinetica, a GPU-accelerated analytics database, makes it possible for national and local governments to derive faster insights from vast volumes of streaming data to find efficiencies, remove waste, reduce costs, and improve public safety. Kinetica brings fast and actionable analytics to national security, public safety, and improving public services, where the benefits are felt by everyone.

HIGH-PERFORMANCE ANALYTICS DATABASE, ADVANCING PUBLIC SERVICES

Kinetica is the fastest GPU-accelerated, in-memory analytics database that delivers truly real-time response to queries on large, complex, and streaming data: 100x faster performance at 1/10 of the hardware of traditional databases. Kinetica's enterprise-grade, easy to use, secure, highly-available database runs in data centers or public cloud and scales out linearly to manage public sector data.

Lightning-fast query, ideal for real-time applications

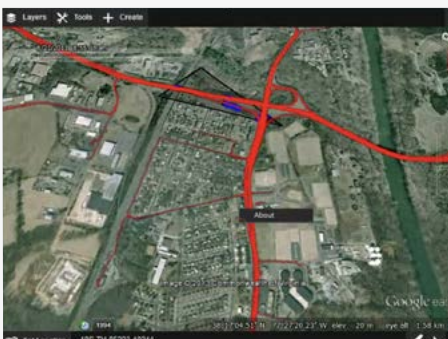
Time-sensitive public sector applications such as national security and defense, public safety, and IOT-based traffic management systems require real-time analytics on continuously-moving data to discover anomalies and take immediate actions. Kinetica takes advantage of the GPU's massive parallelization, distributed computing, and in-memory processing to simultaneously ingest, analyze, visualize, and act on fast-moving data to uncover patterns and anomalies, and deliver actionable insights in milliseconds for real-time actions. APIs and out-of-the-box connectors for enterprise systems such as databases, business applications, cloud, mobile apps, and streaming solutions such as Apache Kafka, Apache NiFi, Apache Storm, and Apache Spark enable parallel ingest, analytics, and egress of continuous data streams for low-latency actions and faster time to value.

Converge AI and BI to do more with data

The massive volume, variety, and velocity of continuously flowing data far surpasses the ability of humans, manual processes, and legacy systems to store, manage, and act on it in a timely and cost-effective manner. Public sector agencies need modern, cognitive techniques such as artificial intelligence, machine learning, and deep learning to intelligently, automatically, scalably, and cost-effectively manage, analyze, and act on data. Kinetica's open architecture features in-database analytics with a User-Defined Functions (UDFs) framework to extend database functionality with artificial intelligence, machine learning, deep learning, and natural language processing. Developers and data scientists can deploy custom code and advanced machine learning libraries such as TensorFlow, Torch, and Caffe natively in the database as GPU-accelerated business logic to power advanced analytics. These advanced algorithms can then be automated or made available to non-technical analysts through SQL and commonly available click-based, self-service BI and visualization tools in a closed-loop fashion to uncover patterns, anomalies, and take actions.

Geospatial data and analytics

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 in conjunction with the GPU-accelerated rendering of maps and accompanying dashboards to facilitate geospatial data and analytics.

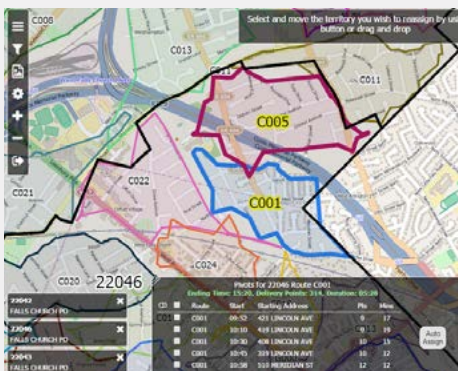


Why Kinetica?

- **Better performance:** 100X faster performance on 1/10th the hardware
- **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, minimized administration

US Postal Services uses Kinetica for real-time operations management, tracking, and notifications

USPS, the world's largest logistics organization, relies on Kinetica to optimize the operations of its several-hundred-thousand vehicles and employees, using visualizations and analytics of real-time data to efficiently deliver goods to the more than 154 million addresses across the United States. The complexities and dynamics of USPS' logistics have reached all-time highs, as consumers demand just-in-time supplies, tracking and delivery updates, and dynamic shipment routing. USPS implemented Kinetica, which merges the query needs of the traditional relational database developer 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 15,000 concurrent users and ingesting data from more than 200,000 scan devices.



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Streamline and simplify

Kinetica's use of brute-force compute power of GPUs means less need for tuning, less indexing of data, and even reduced administration. Faster processing leads to simplicity, savings, and ease of use—as well as blazing-fast response. A scale-out architecture and support for cloud, on-premises, and hybrid deployments ensure that Kinetica offers complete flexibility for deploying and managing public sector data and analytics applications.

SOLUTIONS FOR GOVERNMENT

Kinetica's modern database brings together data – in motion and rest; analytics – machine learning, deep learning, fast OLAP, and geospatial analytics; and compute – GPUs, in-memory, distributed processing for an easy, fast, and elastic data and analytics system. Kinetica can be used for the following public sector applications:

National security, proactive threat monitoring and categorization, and public safety

Kinetica seamlessly integrates data in motion and rest from sources such as drones, security cameras, social media, mobile devices, machine logs, and web to uncover anomalies, patterns, and relationships for proactive threat monitoring, categorization, and public security. It enables application of artificial intelligence and real-time analytics on images, sounds, and videos to deliver the insights necessary to identify threats and deploy assets for use cases such as counterterrorism, cyber-security, and crime prevention. With Kinetica, national security and law enforcement agencies have point-and-click access to machine learning, deep learning, and OLAP on streaming data to act on insights and deliver on mission-critical objectives to keep the nation and citizens safe.

Smart public services

Knowledge is power. With GPU-accelerated computation and in-database analytics on fast-moving data from sensors, connected devices, and IoT systems, Kinetica provides access to sophisticated tools for seeing new patterns and adapting services to meet increasing demands. Machine learning running in-database can provide predictive support for traffic forecasting and flow analysis, weather and climate study, and flight and shipping tracking.

Reduce fraud, waste, and abuse

From unemployment programs to benefits and taxes, public resources are limited and services must be made available to millions. Kinetica provides a fast and powerful foundation for detection, analysis, and prevention of fraud. With the GPU's brute-force compute power and performance, Kinetica makes it possible to explore transactions in ways that were never possible before.

Improve healthcare

Kinetica offers a powerful and flexible foundation for advanced analytics for public health. Fast analytics and predictive models make it possible to identify disease outbreaks, explore health disparities, target public health programs effectively, and ensure efficient allocation of resources. When queries take seconds to run instead of hours, it's easier for public agencies to identify trends and patterns unique to a geographic area and share that information with the public.

Insights from public sentiment

Use citizen and non-citizen data to gauge public sentiment, create better policies, and deliver on needed services. Kinetica's full-text search provides a powerful foundation for public sentiment analysis of comments and feedback from a variety of data sources including social media. Understand and predict reactions to potential policy changes and identify patterns before crises emerge.

To learn more about Kinetica, visit us at kinetica.com

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