



kinetica

Business Systems  
INTERNATIONAL

## Solution Brief

### CHALLENGES OF TODAY'S DATABASES

**Data Warehouses.** RDBMS and data warehouse technologies enable organizations to store and analyze growing volumes of data on high performance machines, but at high cost.

**Distributed Computing.** Hadoop and MapReduce enable distributed storage and processing across multiple machines. Storing massive volumes of data becomes more affordable, but performance is slow.

**In-Memory Databases.** Affordable memory allows for faster data read and write speeds, and enables faster analytics. At scale, compute processing now becomes the bottleneck. Response times seriously degrade for high-cardinality datasets, and systems struggle to ingest and query simultaneously; they can't deliver acceptable response times with real-time, streaming data.

**Large, Complex, and Streaming Data** tax the compute-intensive workloads of CPU-based solutions.

## NVIDIA GPU Engine Powers Kinetica's Accelerated Data Processing

Businesses have spent the last decade determining how to store, manage, and query data to drive business decisions. Today's businesses must unleash the power of AI to transform their data driven businesses into AI enterprises.

NVIDIA GPUs provide Kinetica the power to perform brute-force queries on these large, complex, and streaming datasets. The outcome is remarkable performance increases and tangible savings on hardware. Benchmarks show that NVIDIA GPUs enable Kinetica to deliver 100 to 1000x faster analytic performance than other CPU-based in-memory databases.

Kinetica's advanced geospatial capabilities and its Reveal interactive visualization framework are particularly well suited for analytics on fast-moving, location-based IoT data. Kinetica has native geospatial object types and functions and a full rendering pipeline, enabling users to visualize and interact with data in real time.

Kinetica is further extendable through user-defined functions. UDFs have direct access to CUDA APIs, and can take full advantage of the distributed architecture of Kinetica. This is the first time in-database processing is available within a database that can fully utilize the parallel compute power of the GPU on a distributed platform.

Enterprises can now perform advanced analytics faster and converge AI and BI workloads on a single database platform with this industry-leading, end-to-end solution. Kinetica and NVIDIA provide unmatched performance, predictable scalability across multiple high-density nodes, and seamless integration with industry-standard connectors to data sources and applications.

### Recommended Hardware

**TESLA**  
Servers in every shape and size



**DGX-1**  
The AI supercomputer for instant productivity



**CLOUD**  
Everywhere

