

## NVIDIA AND KINETICA FOR ACCELERATED ANALYTICS

### GPUs Power the Kinetica Analytics Database

Businesses have spent the last decade looking for better ways to store, manage, and query data to drive business decisions. Today's businesses are unleashing the power of accelerated analytics to transform their data-driven businesses into AI enterprises.

#### INTEGRATED SOLUTION

Kinetica's distributed, in-memory database on NVIDIA DGX-1 and NVIDIA GPUs provides real-time analytics on data—in motion and at rest—10 to 100X faster than traditional systems, and at 1/10 of the cost. Together, NVIDIA and Kinetica deliver unmatched performance and predictable scalability across multiple high-density nodes, as well as seamless integration with industry-standard connectors to data sources and applications. Kinetica's User Defined Functions (UDFs) also deliver the first converged AI and BI workloads accelerated by NVIDIA GPUs.

#### INDUSTRY CHALLENGES

- > **Data Warehouses.** Relational Database Management Systems (RDBMS) and data warehouse technologies let organizations store and analyze growing volumes of data on high-performance machines, but at a high cost.
- > **Distributed Computing.** Hadoop and MapReduce allow 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. But 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 or streaming data.

## **Nvidia and Kinetica. Better together.**

### **Unmatched Performance**

- > NVIDIA NVLink™ is a high-bandwidth, energy-efficient interconnect that allows data sharing at rates 5X to 12X faster than the traditional PCIe interconnects.
- > The NVIDIA GPU-accelerated Kinetica database provides real-time ingestion, processing, and analytics for both data in motion and data at rest with 10 to 100X faster performance.

### **Scalability Across Multiple High-Density Nodes**

- > NVIDIA GPUs deliver more throughput with less infrastructure—1/10 the hardware costs on average and 1/20 the power and cooling.
- > Distributed architecture scales on-demand linearly and predictively for both ingestion and querying.

### **Seamless Integration with Industry-Standard Connectors to Data Sources and Apps**

- > Integrate easily with open-source and commercial frameworks such as Apache Kafka, NiFi, Spark, Storm, and ETL tools.
- > APIs are fully supported in REST, Java, Python, C++, Javascript, and Node.js. ODBC and JDBC drivers integrate with industry-standard BI and SQL tools.

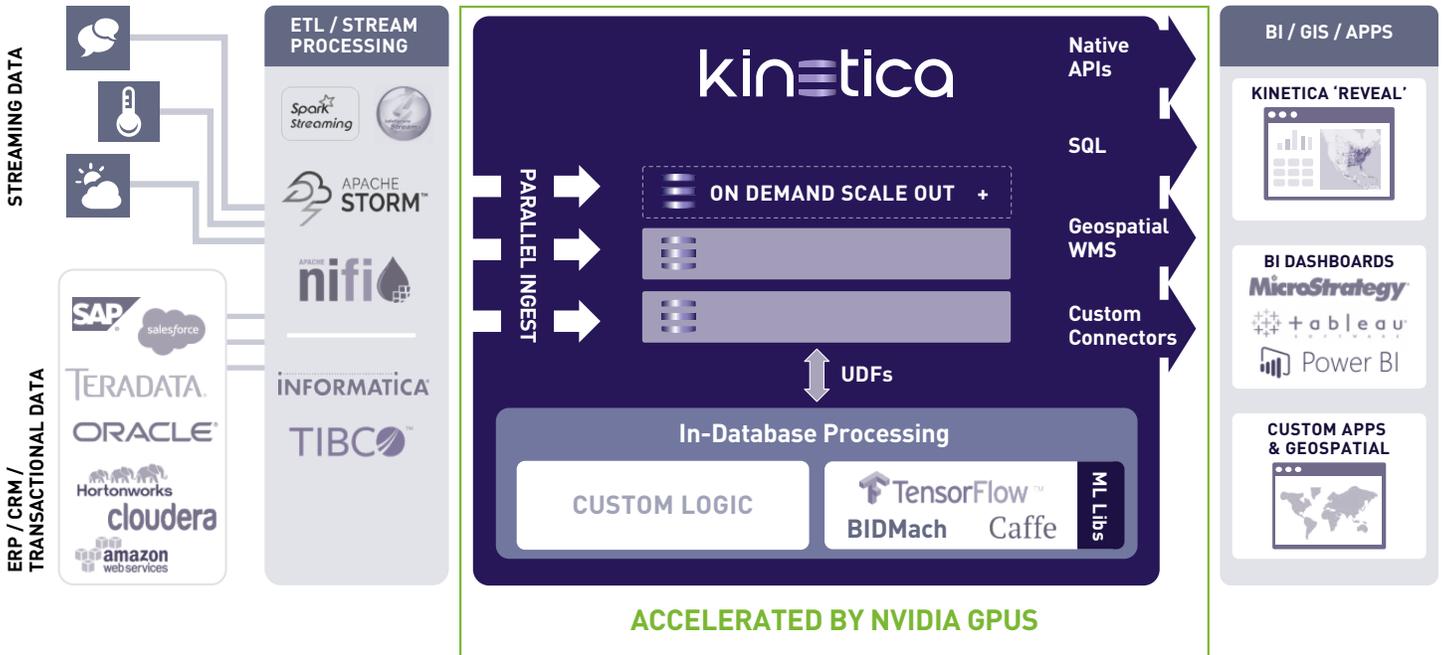
### **UDFs Accelerated by GPUs Converge AI and BI Workloads**

- > Advanced in-database analytics converge artificial intelligence, business intelligence, machine learning, deep learning, natural language processing, and other data analytics into one powerful database platform.
- > Direct access to NVIDIA CUDA® APIs is enabled using UDFs deployed within Kinetica.

### **Interactive Location-Based Analytics**

- > NVIDIA GPU-accelerated Kinetica 'Reveal' interactive visualization framework enables real-time data exploration.
- > Take advantage of a distributed geospatial pipeline for analytics on fast-moving, location-based data with native geospatial object types.

# Kinetica Architecture for AI and BI Workloads



## Industry Insights

|   |  |
|---|--|
| <p><b>Finance</b></p> <p>Take advantage of real-time transaction analysis for stronger portfolio management, counter-party risk analytics, and financial crimes and compliance.</p> | <p><b>Healthcare</b></p> <p>Rapidly run simulations and optimization for drug discovery, precision medicine, and patient 360.</p>  |
| <p><b>Manufacturing</b></p> <p>Monitor real-time data feed from the production line to identify patterns, anomalies, and pro-actively maintain production equipment.</p>            | <p><b>Retail</b></p> <p>Deliver omni-channel customer experiences and manage a real-time supply chain for replenishment and inventory management.</p>                                |
| <p><b>Security</b></p> <p>Use advanced cyber hunting to locate threats faster, more safely, and more accurately.</p>  | <p><b>Transportation</b></p> <p>Realize real-time management and optimization of traffic patterns and congestion. Keep your fleet in top shape with condition-based maintenance.</p> |

## Recommended Hardware

NVIDIA data center GPUs are available in servers, supercomputers, and cloud services around the world. You can now get end-to-end accelerated analytics solutions powered by NVIDIA GPUs with supporting software technologies and support from NVIDIA experts.

**TESLA**  
SERVERS IN EVERY SHAPE  
AND SIZE



Hewlett Packard Enterprise | IBM | CISCO | DELL

**DGX-1**  
THE AI SUPERCOMPUTER FOR  
INSTANT PRODUCTIVITY



NVIDIA

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EVERYWHERE



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## Find Out More

NVIDIA GPUs for Accelerated Analytics: Helping customers effectively analyze, visualize, and unleash the power of AI to transform their digital business into an AI enterprise.

Website: [www.nvidia.com/analytics](http://www.nvidia.com/analytics)

Contact: [dgxanalytics@nvidia.com](mailto:dgxanalytics@nvidia.com)

Partner Webpage: [www.nvidia.com/dgx-apps](http://www.nvidia.com/dgx-apps)

Twitter: [@NvidiaAI](https://twitter.com/NvidiaAI)

Blog: [blogs.nvidia.com](http://blogs.nvidia.com)

Kinetica GPU-Accelerated Analytics Database: Provides fast in-database analytics, machine learning, and interactive location-based analytics.

Website: [www.kinetica.com](http://www.kinetica.com)

Contact: [info@kinetica.com](mailto:info@kinetica.com)

Partner Webpage: [www.kinetica.com/partner/nvidia](http://www.kinetica.com/partner/nvidia)

Twitter: [@KineticaDB](https://twitter.com/KineticaDB)

Blog: [www.kinetica.com/blog](http://www.kinetica.com/blog)