

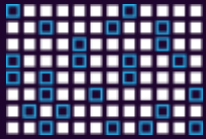
NORAD - Advanced Air Domain Analytics

Major Challenges:

- Analysts need to detect and evaluate threats in real-time
- Threats are evolving and becoming harder to detect and track



Challenges in Air Domain with Current Technology



Requirement:

High-speed processing and efficient algorithms that can analyze large volumes of data quickly and accurately.

Current Technology Issue:

Conventional analytic databases incur latency issues that add precious minutes to deriving insights.



Requirement:

Must be able to fuse numerous sources such as radars, satellites, and aircraft into a composite view of objects using sophisticated spatial and temporal join techniques.

Current Technology Issue:

Conventional databases are limited in the number of spatial and temporal joins they can handle, resulting in data hitting the floor.



Requirement:

Must be able to visualize the common operation picture with atomic level details.

Current Technology Issue:

Conventional databases must summarize the data in order to visualize, resulting in lost information.

The Kinetica Solution

Fast and Efficient Advanced Air Domain Analytics

Leverages the full corpus of data across hundreds of sources at once, including

- Aircraft beacons
- Weather data
- Flight plans
- Satellite imagery
- Terrestrial radar
- And more.

Provides common operational picture to monitor flights and detect potential threats.

In this **Air Domain Demo**, you can see how it works. Tracks overlay a map of North America, allowing operators to analyze different regions or select individual tracks for deeper examination.



Kinetica for Air & Space Domain Analytics

- Ability to query fresh data that is constantly changing—in real time to detect threats faster
- Fuses complex sets of geospatial data points from multiple sources that change over time for a more accurate composite view
- Real-time data visualizations to track flight paths over greater distances and time periods at both the summary and atomic detail level
- LLM converts language to SQL for a more intuitive way to analyze data
- Real-time vector search to quickly identify similar patterns with generative AI