# PUT YOUR DATA ON THE MAP WITH SQREAM

The Importance of Geospatial Context

Along with the digital transformation which we have been experiencing on a global level, the proliferation of devices, satellites, social media and IoT sensors has led to a boom in geospatial data. Objects, or data cross-referencing the relationship between people and locations, is stored with geographic coordinates such as latitude and longitude and enables the creation of geographic maps and data visualizations. This provides a deeper understanding of trends and enables more accurate predictions, better targeted products and improved decision making.

Data with a geospatial context is more valuable to organizations as they strive to understand the bigger picture in both a quantifiable versus qualifiable manner. Benefits of geospatial data include improved efficiency, optimization of operations and creation of new market opportunities. The ability to home in on anomalies, identify trends, deliver better products and services, and mitigate risk has bolstered the rapid adoption of innovative geospatial intelligence tools.
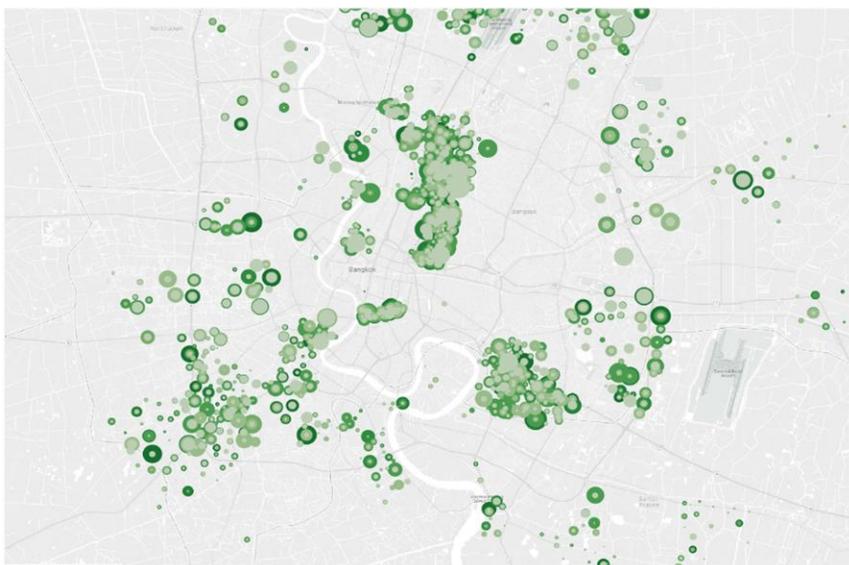
SQREAM GEOSPATIAL FUNCTIONALITY

Columnar data representation for points, lines, polygons

Location data ingestion

Spatial window query

Point-in-polygon test

Converting latitude and longitude to x, y coordinates

Haversine distance between two pairs of latitude and longitude points

Pairwise Hausdorff distances between point sets (e.g., trajectories)

Deriving trajectories from sequences of locations and times

Computing trajectory distance and speed

Computing trajectory spatial bounding boxes

Python bindings and tests for all the above features

Sample applications and performance evaluation scripts

SQREAM PETA-SCALE GEOSPATIAL ANALYTICS

With all the value it brings to the organization, geospatial data also comes with its own set of challenges. The explosive growth of devices over the last few years means that as with all types of data, geospatial data has grown exponentially, reaching into the millions and even billions of records. As data goes from terabytes to petabytes and above, organizations face long data preparation, drawn-out ingestion and queries that run into days, weeks or never complete.

SQream's suite of geospatial functionality works on a GPU foundation to provide rapid ingestion, processing and peta-scale analytics, even as data grows to enormous proportions. The ability to explore data across both time and space means that critical business insights can be in the hand of decision-makers when the organization needs it.

SQream's peta-scale analytics platform provides a tribrid solution – on-premise, on the cloud, and at the edge – for significantly faster Total Time to Insights (TTTI). With SQream, the most complex spatial computations come down from days to hours, and hours to minutes, even across terabytes to petabytes of data. With most organizations using available solutions hitting the wall at 50-100 TB, this difference is significant and a major game-changer when it comes to doing business.

REAL-LIFE BENEFITS FOR GEOSPATIAL INTELLIGENCE

Across industries, geospatial data is being increasingly adopted for its real-time insights into logistics, customer research and more, to help organizations achieve greater business optimization and value. According to recent research, 80% of organizations utilize some type of location data, be it street address, map coordinates, zip code or another geographical identifier. Some examples of geospatial use cases include:

Telecommunications Among other things, mobile operators utilize geospatial data to plan transmission capacities, optimize networks, monitor cellular tower transmitters, and provide more effective customer service.

Military From battlefield management to terrain analysis, the military uses geospatial data across a broad base of use cases. Location-based intelligence and its cross-referencing to collected data such as time, troop numbers and supplies is integral to supporting operations and training in battle and on the home front.

Manufacturing Industry uses geospatial data to improve processes, reduce costs and optimize logistics and delivery. Track production by region to identify and resolve issues before damage occurs.

Physical Store Locations Sales data can be combined with the geographic spread of customers to identify ideal physical store locations for optimized sales.

Consumer Segmentation Cross-referencing location with information relevant to the specific consumer allows companies to tailor offerings based on needs, desires, cultural specifics and more.

Healthcare Geospatial data can be used to identify and track outbreaks, monitor patient to staff proximity and identify patient location for rapid medical response.