CAMBRIDGE SEMANTICS

ANZOGRAPH® DB Capability Announcement

Announcing AnzoGraph DB Geospatial

Combining the Power of Scalable Location Analytics with the Power of Relationships and Analytics in a Graph Database

If your analytics project includes the need to know about people, things, and events in the world and where they happened, you're probably considering a database with geospatial. Geospatial capability can help you determine a location and its relationship to borders, regions, zones, or other places. It can help you define regions and perform calculations about relationships.

Geospatial capability has many applications. In the public sector, communities are using it for managing emergency services, mapping, and predicting crime and city planning. In retail and consumer goods, companies use it for in-store analytics and for site planning. In insurance and financial services, geospatial is key for assessing risk and determining risk zones. Utilities can leverage geospatial for service outages, tower planning, and more. Airlines and logistic companies use geospatial for tracking assets, waste avoidance, and route optimization.

In almost any business, Geospatial is often a key capability for Internet of Things (IoT) projects, tax fee assessment, setting up delivery/sales zones, optimizing routes and a must-have in the new world of COVID-19.

Why Graph Database? Why AnzoGraph DB?

If you've chosen an RDBMS for geospatial analytics, mapping geospatial data models into efficient relational schemas is a challenging task. Storing locations and their relationships tend to lead to an overly complex relational model in RDBMS or one that doesn't sufficiently capture all relationships if simplified. The result might be an enormous number of tables with the necessity to use many inefficient JOINs when performing analytics.

However, the underlying data model of graph databases is based on nodes and edges and that data model can more effectively represent geospatial coordinates and their relationships. Graph data models are versatile for processing semantics, geometry, topology, harmonizing unstructured data with structured data, and combining that data with many other datasets for analytics. The ontologies found in geospatial, such as contains, inside, covers, covered by, touch, and overlap with boundaries intersecting come as a standard feature in the graph model. When you use relationships between the various location entities (eg: distance) or combine graph algorithms like PageRank and shortest path with geospatial functions to manage simple or complex shapes, the combined power provides quicker and unique insights, and provides graph databases an edge over other databases for geospatial analysis.

Anzograph DB Geospatial Highlights

Powerful geospatial capabilities now included with AnzoGraph DB, both in our free edition and enterprise edition

Because it's a graph database, developers are free from complex relationship tables and expensive JOINs needed with a traditional RDBMS

Includes hundreds of functions to manage areas of interest, perform geometric operations, convert between coordinate systems, and more

Empowers developers by offering GeoSPARQL or our custom functions to invoke

Follows OCG standards for geospatial through our ESRI partnership

Scalability

Although it's possible to create geospatial models in some semantic graph databases, performing analysis on billions or even trillions of triples was the biggest challenge in the majority of available graph database tools. Now, with AnzoGraph DB, developers have the power to start with one node and expand to multiple nodes (MPP) to scale for analytics. AnzoGraph DB can handle multiple graphs and can scale to billions or even trillions of triples to face even the toughest geospatial challenges.

Multigraph capability combined with fast parallel data loading allows AnzoGraph DB to Extract-Load-Transform (ELT), maintaining raw data at the base layer, then map layers of semantic and geospatial meaning on top of it.

Geospatial Functions

As a customizable database, AnzoGraph DB uses its own user-defined function (UDX) capability, or GeoSPARQL to give you over 160 functions to perform geospatial analysis.

- **Define Regions** – Define polygon points and circles on your map. The regions can be two dimensional or 3D. Great for understanding fly zones or tower coverage, for example.
- **Use common shape data files** – Define zones with common geospatial files. Use these predefined maps to understand counties, tax zones, flood zones, precincts, and much more. Formats supported: SHP, GeoJSON, KML, WKT, and WKB.
- **Understand relationships** – Use the geospatial functions to understand if two zones overlap, touch, or are unconnected. Understand whether a point of interest is in a zone or not.
- **Convert coordinates** – It is often necessary to convert between two or more coordinate systems when working on problems in 3D space. AnzoGraph DB includes the algorithms to convert between Cartesian, Spherical, Cylindrical, and Elliptical coordinate systems.

AnzoGraph DB conforms to Open Geospatial Consortium (OGC) standards. It can be invoked either with an embedded library of geospatial functions or by using the GeoSPARQL standard for location analytics. Combine these geospatial functions with the analytical power of AnzoGraph DB. The database expands basic SPARQL* and Cypher specifications. Use it for embedded analytics that require graph algorithms, graph views, named queries, aggregates, built-in data science functions, data warehouse-style BI, and reporting functions.

Free edition

Users who download AnzoGraph DB Free Edition at anzograph.com will automatically get a free license that they can use forever for up to 8 GBs of usable memory. When registered, the product supports 16 GBs. Now's the best time to dive in and give AnzoGraph DB a try.