Sygnos **DB**

An Intelligent Database

Rich Profile Data Search & Indexing

Indexes are related to specific tables and consist of one or more keys. A table can have more than one index built from it. The keys are a fancy term for the values we want to look up in the index. The keys are based on the tables' columns. By comparing keys to the index it is possible to find one or more database records with the same value.

In graph database, the data is stored not as cells in a table, but as nodes with properties and relationships. This set of two nodes and the relationships between them is termed triples, as opposed to tuples in relational database systems.

In most graph databases, the index represent only the relationships between the nodes in a graph, or just the set of nodes in a graph. Our graph database indexed not only the relationships, but also the nodes within a relationship in a triple. This process allowed for faster overall querying by reducing the amount of index that a database system need to search before it can retrieve a result.

Scaling up the process, we also index the graphs and the relationships between the graphs, creating a hypergraph that would speed up search and retrieval process immensely. This hypergraph technology was the foundation for our search and indexing process.

Free-Text Search

By splitting the graph into meaningful ontological domains, not only the system can optimise the search and retrieval, it also gave the users the flexibility to search the data under multiple dimensions using free text search. This flexibility would also extend to the machine learning pipelines built upon the system, as it would greatly simplify the algorithm design process.

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Fast Search & Retrieval

By representing the graphs as sets of JSON-LD objects, and allowing for a free-text search protocol, our system is capable of managing petabytes of data, searching up to millions of datapoint every second across multiple domains.

Automatic Indexing

To complement our hypergraph technology, our system continuously scan and index the data points stored in every graph, maintain their structural integrity, and validate their ontological relationships, to self-optimise the graphs and minimise querying time.

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