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In a world of 2.5 quintillion bytes of data created each day, the bar for enterprise knowledge and information systems, and especially for their search functions and capabilities, is raised high. New ways of using legacy databases are put to work to bring integrated information at the fingertips of knowledge workers and to empower deeper discovery of data patterns and richer analysis of information grids.

One such way towards better search (and better-informed actions) is the SPARQL query.

What is a SPARQL query and Why Does It Matter to Us, the Knowledge Seekers?

The SPARQL query is a way to search, access and retrieve structured data by pulling together information from diverse data sources.

SPARQL is an abbreviation for Simple Protocol and RDF (Resource Description Framework) Query Language. The SPARQL query language, designed and endorsed by the W3C, is the standard for querying data, stored in RDF or mapped to RDF. In more technical detail, a SPARQL query is a set of triple patterns where each element (subject, predicate and object) can be a variable. Searching with a SPARQL query is actually matching patterns in the query to patterns in the dataset.

From a searcher's perspective, such queries allow users to navigate multiple information sources with higher level of accuracy and at a greater speed, not necessarily knowing what exactly they are looking for. For example, one can construct a SPARQL query and search across databases for paintings by Italian artists from the 16th century that contain elements of a certain art movement.

To see why this is so important, especially within an enterprise context, let's widen the lense a little bit. Think of all the databases an organization is operating with. A database with records about clients, a database with records of finances, one with suppliers, another with locations, several domain-specific public databases, etc.

Accessing all these independently designed and maintained datasets in different databases one by one and further integrating the results is cumbersome, if not impossible, and/or

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extremely expensive. Arguably, this cannot be the 360-degree view we all seek, at least not an effective one. When it comes to finding actionable information , we need to think where to search, how to search (as to comply with the schema of the database, rather then the opposite), how to further analyze all the different results we get (or very often don't get), etc.

In such cases, the reason a single point of entry to information is so crucial is one: easy search, access and retrieval.

And this is where SPARQL queries come to the rescue. Constructed well, such queries allow us to focus on what we would like to know instead of how a database is organized.

- Mapping the schemata of multiple sources to a single unified ontology
- Mapping across identifiers of entities, nomenclatures and taxonomies across multiple sources
- Normalizing data values (if needed)

When constructed right, a SPARQL query gives us:

- Less costly queries (less computational resources)
- Higher level of accuracy
- Greater speed

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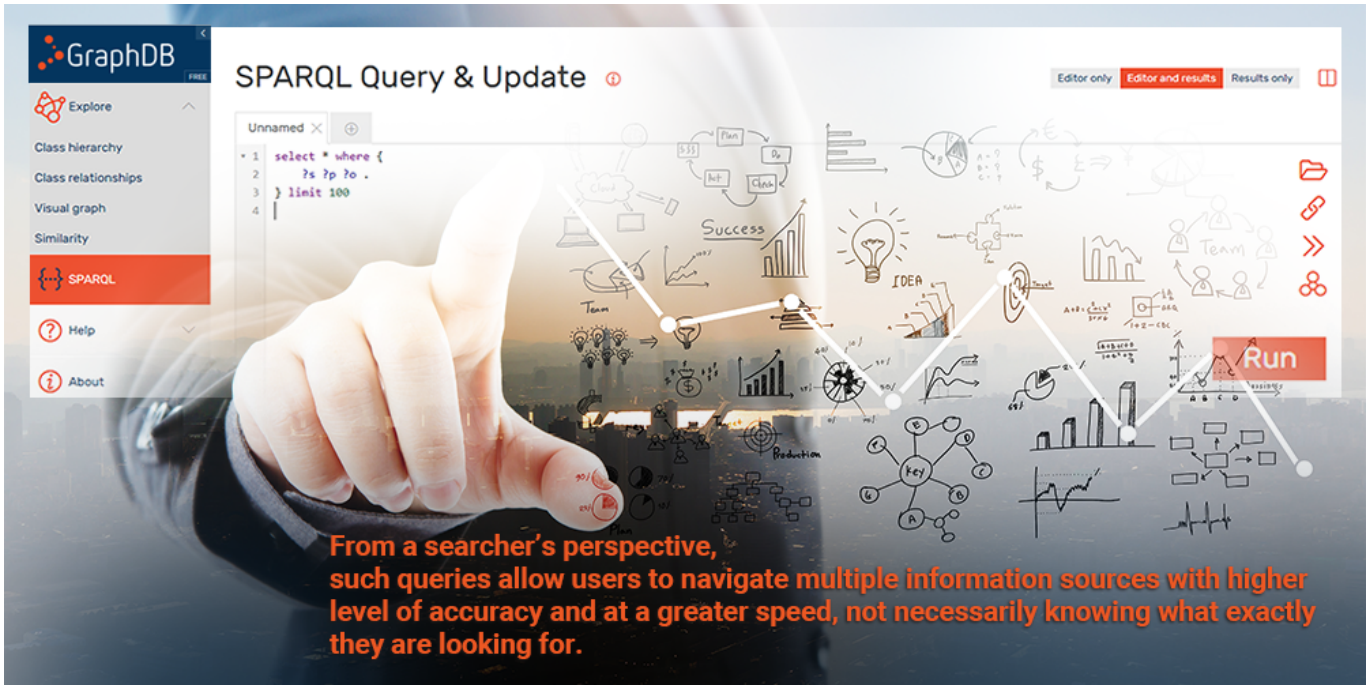

Putting Federated SPARQL Queries to Work for the Enterprise

SPARQL queries are not constrained to working within one database. Through the so-called federated queries one can access multiple datasets. In other words, the SPARQL query has a smart relative – the federated SPARQL query.

Federated SPARQL queries, being an extension to the SPARQL query syntax (see SPARQL 1.1 Federation) are an even more exciting way to better search and navigate data distributed across the Web and within the enterprise's multiple datasets.

Translated into benefits for the knowledge seeker and everyone who wants to turn data into actions, a single federated SPARQL query allows us to juggle heterogeneous datasets to find relevant results, navigate data architectures in an interconnected way and, most importantly, get a uniform view of an otherwise fragmented information across the Web and internal silos.

And all this – without the need to directly write SPARQL queries. Most semantic graph

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databases, GraphDB included, have intuitive SPARQL editors with autocomplete, explorer and many other features to facilitate the construction of SPARQL queries.

Epilogue: What Am I Looking for?

What makes SPARQL such a powerful way of finding information is the ability it provides for constructing a search that has multiple “unknowns” in it. It can help us search databases for books in Italian from any author who is born in Rome, or for news mentioning the first 5 people from the list of the top 10 billionaires in the world which are working in companies in the financial sector.

No matter how we wish to query the databases we are trying to elicit information and knowledge from, SPARQL lets us focus on what we need to know. Share on XIt lets us access multiple data containers from one single place and retrieve and manage non-uniform data to ultimately arrive at the point of better decision-making based on broader and deeper access to our information.

Want to experience the power of federated SPARQL queries?