# Session 2.1

##### Session 2.1 (SEMANTiCS)

#### Time: Wednesday, September 18, 2024 - 13:00 to 14:30

#### Chair: TBA

## **Talks**

### UniPart: Optimizing Streaming Graph Partitioning towards Universal Adaption in RDF Triple Stores

Purpose:

With increasing size of Resource Description Framework (RDF) graphs, the resulting graph structures can become too large to be managed on a single compute node, lacking the necessary resources to execute a partitioning of the graph -- in particular, when the partitioning method relies on global graph information for which the entire graph has to be loaded into the main memory. This paper introduces a window-based streaming partitioning technique to obtain distributed RDF graphs, overcoming the memory limitations of traditional partitioning methods.

Methodology:

We evaluated our approach, UniPart, by comparing it with established graph partitioning algorithms such as METIS, LDG, and WStream. The comparison focused on key metrics, including the proportion of edge cuts.

Findings:

Through practical assessments using the LUBM dataset, our algorithm demonstrated strong performance in load balance, execution time, and memory usage. Notably, under the DFS streaming order, UniPart achieved a 20\% reduction in edge-cut ratio compared to LDG.

| Wenhui Yang | Ahmed Al-Ghezi | Lena Wiese |
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### TriplyDB: Unlock your data’s potential [SP]

| Wouter BeekTriply |
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### Querying and Ingesting Linked Open Data about the Decision-making Process of the Flemish Government through Themis

| Tom De Nies | Alvin Demeyer |
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### Enabling Delayed-Answer Auctions for RDF Knowledge Graphs Monetisation

Traditionally, querying knowledge graphs is free of charge, however, ensuring availability of data and service incurs costs to knowledge graphs providers. The Delayed-Answer Auction (DAA) model has been proposed to fund the maintenance of knowledge graphs endpoints, by allowing customers to sponsor entities in the Knowledge Graph so query results that include them are delivered in priority. However, implementing DAA with a time to first results acceptable for data consumers is challenging because it requires reordering results according to bid values. In this paper, we present an approach to enable DAA with low impact on query execution performance. Our approach relies on (i) reindex sponsored entities by bid value to ensure they are processed first (ii) Web preemption to ensure delayed answering. Experimental results demonstrate that our approach significantly outperforms a baseline execution in terms of time to deliver the first results.

| Hala Skaf-Molli | Pascal Molli |
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| Luis-Daniel Ibanez | Abraham Bernstein |

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