UniQue: An Approach for Unified and Efficient Querying of Heterogeneous Web Data Sources

Building mashup applications is challenging

- Heterogeneous data formats
- Heterogeneous query techniques
- Inefficient use of network resources

The UniQue approach

The unified querying (UniQue) approach and a proxy-based implementation provides a uniform and declarative interface for querying heterogeneous data sources across the Web. Besides hiding the differences between the underlying data formats and query techniques, UniQue heavily embraces open W3C standards to minimize the learning effort required by web mashup developers.

One data format

Examples of mapping data between (a) JSON / CSV and (b) XML.

Extendable query language

Example of extending the expressiveness of CSS Selectors with XPath. The query is translated from (a) UQL to (b) XPath / XQuery. Our `:xpath()` extension in UQL is highlighted in red.

The UniQue implementation

UniQue proxy between a web browser and web data sources.

Results

Comparison of generated network traffic per data source between UniQue and YQL.

More information

https://mediatech.aalto.fi/publications/webservices/unique/