Linked Data for Building a Map of Researchers

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Researchers Map[1] is a simple mash-up application that provides a map of professors of the German database community, or more precisely, of the professors' workplaces (cf. Figure 1). The list of professors represented in the map can be filtered by research interests such as query optimization or data warehousing. Selecting a professor opens a list of her/his publications. We developed Researchers Map to showcase the potential of Linked Data for mash-up applications. For this reason, Researchers Map is solely based on data that is published following the Linked Data principles [1].
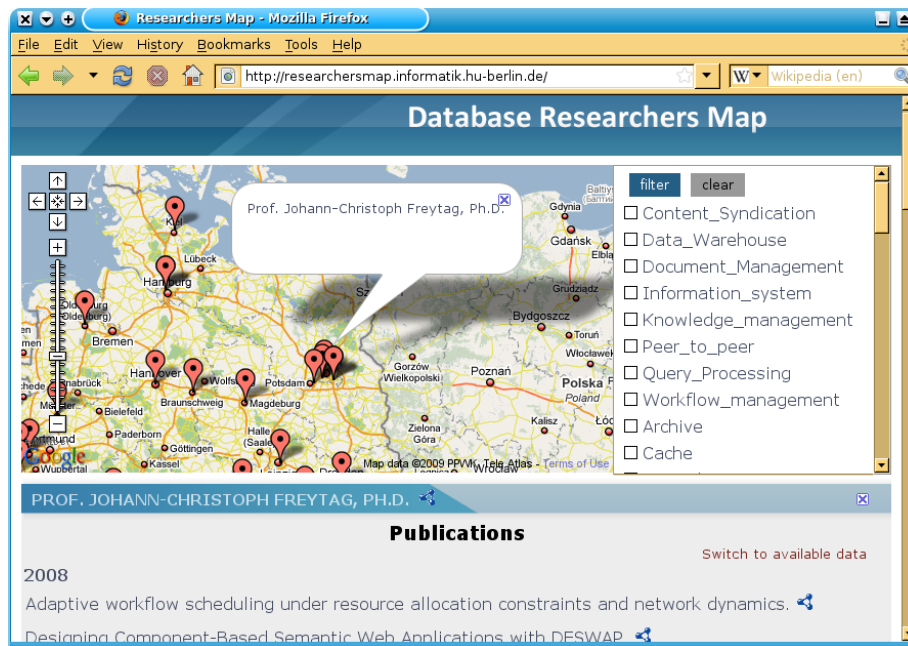

Fig. 1. Screenshot of Researchers Map

Researchers Map is a prototype for a new kind of applications which enable users to retain full control over their data. To appear on the Researchers Map the professors do not have to enter their data (e.g. workplace address and research interests) in a form which is used to collect data for a database. Instead, each professor manages and publishes her data with her own content management system (CMS). Researchers Map only needs a URI that represents the

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[1] http://researchersmap.informatik.hu-berlin.de

professor and that links to the data provided by her. Professors who do not have access to a CMS may, alternatively, use a public data hosting service that can publish Linked Data. In any case, the professors do not have to give up ownership of the data they provide about themselves. Instead, each professor retains complete control over the authoritative source of data provided by her. This approach brings the additional advantage that the data is immediately accessible for other applications. Thus, ideally, there is no need for the users to perform the cumbersome process of entering the same data in different Web forms over and over again.

Managing personal data might become a laborious task for the users. However, due to the Linked Data principles users may benefit from the work done by other data publishers. For instance, instead of managing the data about their publications on their own the professors may simply refer to the data that is available in the Linked Data version of the DBLP bibliography database[2]. This option, however, does not deter a professor from providing additional publication data in her own dataset.

We realize Researchers Map using SQUIN[3] which is a Web application development component that allows consuming Linked Data in a very easy manner. SQUIN provides a query interface to the Web of Linked Data which hides the complexity of querying Linked Data sources; developers issue SPARQL queries over a single, virtual RDF graph that basically comprises all datasets interlinked on the Web. For our application we provide queries such as the sample query in Figure 2 which are simply passed to the SQUIN component. Researchers Map needs only to process and to visualize the query results retrieved from SQUIN. This approach allows additional flexibility by using query templates, i.e., queries that may contain place holders. Before issuing these queries the place holders are substituted with URIs or literals.

Researchers Map is Free Software; the source code is available in the Subversion repository of SQUIN[4].

```
1  SELECT DISTINCT ?i ?label WHERE {
2    ?prof rdf:type <http://res ... data/dbprofs#DBProfessor> ;
3          foaf:topic_interest ?i .
4    OPTIONAL { ?i rdfs:label ?label
5               FILTER( LANG(?label)="en" || LANG(?label)="") }
6  } ORDER BY ?label
```

Fig. 2. Query that collects information about the research interests of all professors in order to initialize the filter widget of Researchers Map (prefix declarations omitted)

References

1. Berners-Lee, T.: Design Issues: Linked Data. Online, Retrieved May 5, 2009, from http://www.w3.org/DesignIssues/LinkedData.html

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[2] http://dblp.l3s.de/d2r/

[3] http://squin.org

[4] https://squin.svn.sourceforge.net/svnroot/squin/ResearchersMap/