Linked Data-driven Web Components

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ABSTRACT
This paper provides a ...

1. INTRODUCTION
The

The remainder of this article...

2. RELATED WORK
Web Components and the Semantic Web [1]

3. WEB COMPONENTS
Web Components are a set of W3C standards that enable the creation of reusable widgets or components in Web documents and Web applications. Web components aim to bring *Component-Based Software Development* (CBSD) to the World Wide Web. Some advantages of CBSD approach are reusibility, replacability, extensibility, encapsulation and independence.

4. LINKED DATA-DRIVEN WEB COMPONENTS
Definition

We define a *Linked Data-driven* (LD-R) Web Component as a Web component which employs RDF data model for representing its content and specification (i.e. metadata about the component).

4.1 Features
Linked Data-driven Web components provide the following features:

- *Fine-grained Web applications.* Resource Description Framework (RDF) provides a common data model that allows data-driven components to be created, shared and integrated in a structured way across different applications. Figure 1 depicts the 5 main component levels in a Linked Data-driven Web application. The dataflow in the application starts from the *Dataset* component which handles all the events related to a set of resources embedded in a named graph. The next level is the *Resource* component which is identified by a URI and indicates what is described in the application. A resource is specified by a set of properties which are handled by the *Property* component. Properties can be either individual or aggregate when combining multiple features of a resource. Each property is instantiated by a value (or mutiple values in case of an aggreagte object). The values of properties are controled by the *Object* component which invokes different components to view, edit and browse the property values. *Viewer*, *Editor* and *Browser* components are terminals in the LD-R single directional data flow where customized user-generated components can be plugged into the system.

  In addition to the fine-grained component architecture, LD-R Web applications provide a fine-grained access control over the data provided by the components. RDF-based access control in LD-R applications operates at four different granularities provided by Dataset, Resource, Property and Object component levels. For example, we can restrict access to a specific property of a specific resource in a certain dataset.

- *Customization and Personalization.* LD-R provide a versatile approach for context adaptation. A context can be a specific domain of interest, a specific user

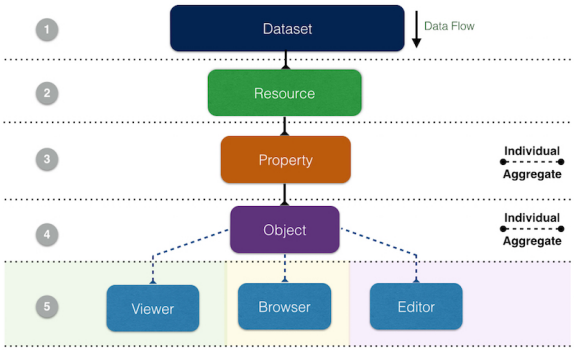

Figure 1: Architecture of LD-R Applications.

Figure 2: LD-R Scopes.

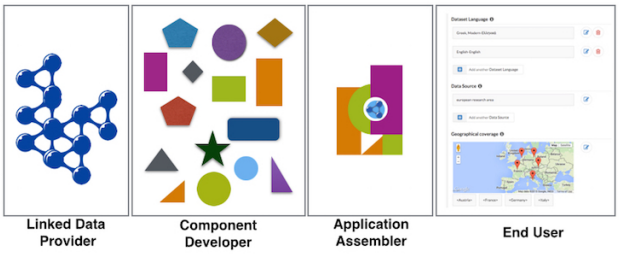

Figure 3: Life-cycle

requirments or both. In order to enable customization and personalization, LD-R exploits the concept of *Scope*. A scope is defiened as a directed combination of Dataset, Resource, Property and Object components (cf. Figure 2). Each scope conveys a certain level of specificity on a given context ranging from 1 (most specific) to 15 (least specfic).

- scopes and user-scopes

- *Component/Content Visibility and Reusability.*

  - RDFa, Microdata

4.2 Life Cycle

5. IMPLEMENTATION

http://ld-r.org

6. EVALUATION

RISIS

OpenPhacts

7. CONCLUSION AND FUTURE WORK

8. AKNOWLEDGEMENT

We would like to thank our colleagues from the KRR research group at VU University Amsterdam for their helpful comments during the development of the LD-R framework. This work was supported by a grant from the European UnionâĂŹs 7th Framework Programme provided for the project RISIS (GA no. 313082).

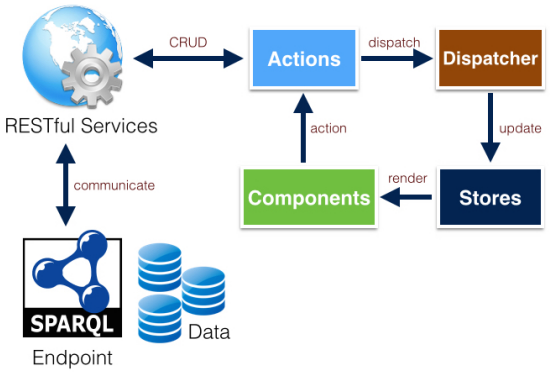

Figure 4: Data Flow

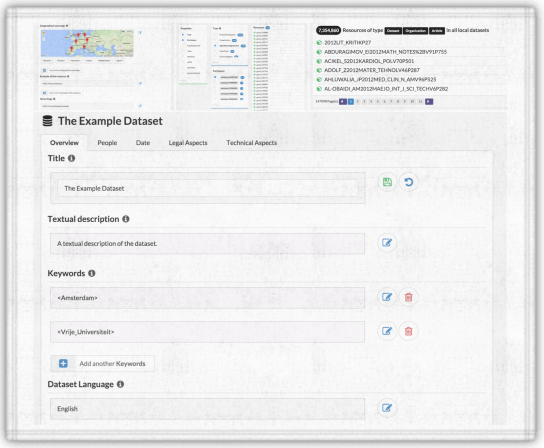

Figure 5: Screenshot

9. REFERENCES

[1] M. Casey and C. Pahl. Web components and the semantic web. *Electr. Notes Theor. Comput. Sci.*, 82(5):156–163, 2003.