A3-D7

Personalization for the Semantic Web III

Abstract
This report provides an overview of the achievements of working group A3 for bringing personalization functionality to the Semantic Web. It continues the work started in the deliverable A3-D1 and A3-D4. In the deliverable at hand, we report on a successfully held workshop on Semantic Web Personalization at the 3rd European Semantic Web Conference, and the research results on techniques and algorithms for enabling personalization in the Semantic Web, and achievements on developing suitable architectures for the personalized information systems in the Semantic Web.

Keyword List
personalization, semantic web, web services, agents

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1 Executive Summary

The work in working group A3 is centered around three axes: In the first axis, we research foundations for personalization and adaptation in the Semantic Web, and in particular aim at logical frameworks for describing and characterizing appropriate personalization functionality. This axis is therefore called Adaptive Functionality. The second axis is on deploying personalization functionality in systems and prototypes – the Testbeds-axis. In the third axis, we develop a personalized information system for the Semantic Web: a personalized Web portal for the REWERSE network.

This report belongs to the Adaptive Functionality axis and provides an overview of the achievements of working group A3 on researching personalization functionality for the Semantic Web, Personalization for the Semantic Web for short. Main achievements of A3 are the works on encapsulating functionality for personalization in a self-describing and self-organizing manner, and the development of suitable architectures for employing encapsulated personalization functionality in Semantic Web applications.

The deliverable reports on

1. the workshop on "Semantic Web Personalization", which was held at the 3rd European Semantic Web Conference", Budva, Montenegro, June 2006, organized jointly by members of the working group A3 of the NoE REWERSE, and Motorola (see section 2),
2. research papers showing progress on designing suitable personalization approaches for the Semantic Web (see section 3, Personalization for the Semantic Web: Techniques & Algorithms), and
3. research papers showing progress on developing architectures for realizing personalized information systems (see section 4, Personalization for the Semantic Web: Architectures).

2 Semantic Web Personalization Workshop

The ultimate goal of the Semantic Web is to enable applications which offer enhanced and efficient possibilities for end users to benefit from electronically stored information. The vision of a Semantic Web, in which information is given a well-defined meaning, better enabling computers and people to work in cooperation already stresses the importance of efficient end user support for accessing and working with Web information. However, current development in the Semantic Web focuses on formalisms, languages, reasoning and the development of according technological frameworks, so to speak the first part of the vision. These technologies shall constitute an environment capable of enabling enhanced, efficient and user-centered applications, thus enabling the second part of the vision, and the goal of the Semantic Web.

The Semantic Web Personalization workshop, which was held on June 12th, 2006, in Budva (Montenegro), in conjunction with the 3rd European Semantic Web Conference, brought together researchers and practitioners in the fields of Semantic Web technologies and personalization in order to discuss the emerging possibilities of realizing personalization in a Semantic Web. As personalization is not a new topic at all, the workshop’s goal was especially to identify needs for personalization in the Semantic Web, but also experiences on personalized systems
and how personalization in the Semantic Web can benefit and learn from these experiences. Furthermore, of course, first applications and prototypes offering the users personalized experiences were proposed and discussed. The discussion notes of the workshop were published at http://www.kbs.uni-hannover.de/~henze/swp06/discussionnotes.html.

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Accepted papers for this workshop focused on three thematic issues:

1. Reasoning for Personalization
   - M. Baldoni, C. Baroglio, A. Martelli, V. Patti, and L. Torasso: Verifying the compliance of personalized curricula to curricula models in the semantic web
   - T. Heath and E. Motta: Personalizing Relevance on the Semantic Web through Trusted Recommendations from a Social Network

2. Acquisition and application of user profiles
   - C. Abela and M. Montebello: PrediCtS: A Personalised Service Discovery and Composition Framework
   - A. Ankolekar and D. Vrandecic: Personalizing web surfing with semantically enriched personal profiles
   - L. Hella and J. Krogstie: Semantic Web as enabling technology for m-commerce personalisation: Scenarios

3. Architectures enabling Personalization in the Semantic Web
   - A. Aragones, J. Bruno, A. Crapo, and M. Garbiras: Using ACUITy to Personalize Content in Semantic Web Applications
   - L. Sauermann, A. Dengel, L. van Elst, A. Lauer, H. Maus, S. Schwarz: Personalization in the EPOS project

The proceedings were published in the workshop series of the 3rd European Semantic Web conference (one exemplar of the proceedings is accompanying this deliverable), and were made online available before the workshop took place at http://www.kbs.uni-hannover.de/~henze/swp06/swp.pdf
3 Personalization for the Semantic Web: Techniques & Algorithms

3.1 Agent technologies for personalization


3.2 Web Service technologies for personalization


3.3 Personalization algorithms and strategies


3.4 Data capturing for the Semantic Web


2. Tamir Hassan, Robert Baumgartner: Using Graph Matching Techniques to Wrap Data from PDF Documents (WWW 2006 Demo/Poster)

3. Bernhard Kruepl, Marcus Herzog: Visually Guided Bottom-Up Table Detection and Segmentation in Web Documents (WWW 2006 Demo/Poster)


4 Personalization for the Semantic Web: Architectures

4.1 Web Service-based architectures


4.2 Portals


5 Conclusion

Facilitating personalized access to information in a Semantic Web is still a challenging issue. Working group A3 has contributed to both theoretical insights and practical solutions for suitable personalization strategies for the Semantic Web, and has investigated on enabling technologies and architectures. This report summarizes the achievements of working group A3 on disseminating knowledge on personalization for the Semantic Web (with an international workshop organized by A3), and research papers focusing on agent technologies and Web Services to enable personalization functionality in the Semantic Web, personalization algorithms and strategies, data gathering, and Web Service and Portal-based architectures for personalized information systems.

6 Acknowledgment

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