Sneachta and the PUII -The Semantic Social Network Portal

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Abstract

This paper presents an overview of the "SNEACHTA" community portal project. A Semantic Social Network Portal project applied to the PUII (Programme for University Industry Interface) to support efforts in enterprise training units to identify up-skilling needs of the employee in the company and to simplify the creation and reuse of knowledge in online communities. The goal of the project is to enable social networking features for online learning communities and to monitor the changing needs and skills of the work force in enterprise environments. The development of the Semantic Social Network Portal is motivated by the growing acceptance and demand for formalized semantic representation in the form of meta-data to improve search results for online resources and content management in a personalized fashion. Furthermore the portal enables interoperability of documents and metadata for communities of practice (CoP). This project aims to integrate Social Networks and Enterprise Portals in the context of Knowledge Management.

1 Introduction

Online social networks become increasingly popular and it can be envisioned how they enhance the value of online collaborative knowledge management [McDonald, 2003]. Online social networking sites introduce a new means of social participation to encourage users to contribute to the online community, share experience and identify expertise in the organization. The development of the PUII Semantic Social Network portal aims to combine the functionalities of ontology driven web portals [Davies, 2003][Lara et al.,2003] and social networks to serve the CoPs in the process of knowledge management and social interaction.

1.1 The PUII Semantic Social network

The semantics in the context of the PUII Semantic Social Network Portal [Neumann *et al*, 2004] implementation describes the relationship between entities and meaning based on metadata, controlled vocabularies, and ontologies and user profiles. An attempt to imple- ment this technique for web resources is the Semantic Web representation of data on the World Wide Web, based on the Resource Description Framework (RDF).

1.2 Characteristics of the Semantic Network Portal

The characteristics of the Semantic Social Network Portal development are:

- representation of online resources and users with meta data
- Information tailoring and advanced linking capabilities based on user profiles, social networks and ontologies
- Semantic interoperability between communities of practice [Friesen, 2002].

An area of particular interest within the project is the ability to build and version ontologies, dynamically based on social network interaction [Kim, 2002]. The semantic web technologies can help to enable communities to evolve, use and manipulate more intuitively emerging knowledge structures. The user can adjust how to view and interact with content and user data based on ontologies and metadata descriptions, which act as the query framework for community content. The lack of explicit formalization of current online communities prevents semantic interoperability of resources.

The Semantic Social Network Portal addresses this and considers the use of dynamic social networks in the construction of vocabularies and taxonomy properties to enhance collaborative work based on reusable metadata feeds.

2 The challenges of the SNEACHTA Portal

We face the following challenges with respect to the development of the online social networking community facet of the SNEACHTA portal:

- *How to motivate people to contribute?* Current online skills databases suffer from the fact that it is very hard to motivate people to contribute to them and maintain their entry. In contrast, Online Social Networking (OSN) like Orkut.com or Friendster.com sites have al-

ready millions of users and new users are signing up every day. The main reason is that the OSN sites are give immediate feedback and benefits in terms of social relationships and connections that an individual has – one's personal network becomes experienced and people are excited about exploring where these connections might lead them.

- *How to protect privacy?* Privacy and corporate security needs are of concern. Not everybody should be able to access all information provided by the portal. Current OSN sites don't have the privacy and security mechanisms for allowing specific access as necessary for communities of practice. e.g., for certain information might be usable for friends which are affiliated only with certain companies, who have agreed to protect this information. SNEACHTA present novel security mechanisms based on social network profiles necessary to share information in open environments like the WWW.

- *How to evolve the vocabulary used to describe profile and skills information?* The real world constantly changes, as do necessary skills. This means that the vocabulary necessary to describe profiles and skills also has to change constantly. Current OSN sites are static with respect to the profile vocabulary, which means only the site developers can change the vocabulary used in profiles. To capture the dynamic nature of the economic and skill development, methods are necessary to allow users to evolve the vocabulary themselves. This requires methods to reach consensus on vocabulary terms and to identify when the terms used in different profiles have similar meanings. SNEACHTA will develop ontology management and evolution mechanisms.

The social networking component of the SNEACHTA project will support people in different companies to connect to each other and share and develop skills necessary to Ireland's industry to continue to thrive and prosper.

The Internet allows authors to produce online content for general or specific domains to inform a target group or broadcast information to the general public. In the current web architecture there is no explicit relationship between producer and ownership properties. The user has to guess the author of resources from implicit environment parameters, like address URI or link reference in documents. This demonstrates a loss of information relevant properties of online resources. Identification or online resources with user identification reintroduce the notion of trust and authority in online environments. Meta data can be used to augment online resources with these personal information qualities and can be used to automatically infer from generalized Meta information, ontology, further relevant relationships of user information and online resources.

The context adaptation of views to system resources is based on profiles definition. The application is based on Semantic Web Technologies and open standards. The project will develop a software environment that is able to process semantic meta-data enriched online resources and reason about facts in a knowledge base. This will result in a novel software solution for distributed trusted networks, a prototype which makes contributions to standards and application in knowledge management. Relevant and commonly used features for interaction and communication will be implemented in the form of web services components. This approach will lead ultimately to reusable software components and reduced production time for future semantic web portals.

Summary

The Semantic Social Networking Portal project presents a novel approach to support enterprise-learning communities to ensure the quality and timeliness of enterprise education of employees and supports the circulation of knowledge already existing in the company throughout the group. Enterprise training activities and Semantic Social Network portal development provide new opportunities for universities in post third-level education to act as guides and innovators in online educational communities.

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