SWWS – Semantic Web Enabled Web Services

Title:
Project Description

Version: **FINAL**
Date: **19, February 2003**
Pages: **13**

Responsible Author:
Juan Miguel Gomez

Co-Author(s): consortium
Dieter Fensel
Ying Ding

Status:	**Confidentiality:** PU	
[ ] Draft	[X] Public	- for public use
[ ] To be reviewed	[ ] INT	- for SWWS consortium (and Project Officer if requested)
[ ] Proposal	[ ] Restricted	- for SWWS consortium and Project Officer only
[X] Final / Released to CEC		

Project ID: IST-2001-37134

Deliverable ID: D11.1

Workpackage No: WP11

Title: Project Description

Summary / Contents:

This deliverable presents a project presentation and description of the SWWS project.

SWWS Consortium

This document is part of a research project funded by the IST Programme of the Commission of the European Communities as project number IST-2002-37134. The partners in this project are: Leopold-Franzens Universität Innsbruck (LUI, Austria)); National University of Ireland, Galway (NUI, Ireland); FZI – Forschungszentrum Informatik (Germany); Intelligent Software Components S.A. (ISOCO, Spain); OntoText Lab.- Sirma AI Ltd.(Bulgaria); Hewlett Packard (UK), British Telecommunication (UK).

Leopold-Franzens Universität Innsbruck

Institut für Informatik
Technikerstrasse 25
A-6020 Innsbruck Austria

Tel: +43 512 507 6489
Fax: +43 664 4932607

Contact person: Juan Miguel Gomez
E-mail: juan.miguel@uibk.ac.at

National University of Ireland, Galway (NUI)

National University of Ireland,
University Road
Galway, Ireland

Tel: +35 391750400
Fax: +35 391562894

Contact person: Paul Higgins
E-mail: Paul.Higgins@nuigalway.ie

FZI – Forschungszentrum Informatik

Haid-und-Neu-Str. 10-14
76131 Karlsruhe, Germany

Tel: +49 721 9654816
Fax: +49 721 9654910
Contact person: Rainer Tellman
E-mail: rainer.tellmann@fzi.de

Intelligent Software Components S.A. (ISOCO)

Francisco Delgado 11, 2nd Flor
28110 Alcobendas, Madrid, Spain

Tel: +34 91 3349797
Fax: +34 91 33497999

Contact person: Richard Benjamins
E-mail: richard@isoco.com

OntoText Lab.- Sirma AI Ltd.

OntoText Lab.
38A Chr. Botev Blvd.
Sofia 1000, Bulgaria

Tel: +35 92 9810018,
Fax: +35 92 9819058

Contact person: Atanas Kiryakov
E-mail: Atanas.Kiryakov@sirma.bg

Hewlett Packard

HP European Laboratories
Filton Road, Stoke Gifford
BS34 8QZ Bristol, UK

Tel: +44 117 3128631
Fax: +44 117 3129285

Contact person: Janet Bruten
E-mail: janet_bruten@hp.com

Assistant Contractors:

British Telecommunications plc.

Registered office: 81 Newgate Street London EC1A 7AJ
Registered in England no. 1800000

Tel: +44 1473 609583
Fax: +44 1473 609832

Contact person: John Davies
E-mail: john.nj.davies@bt.com

Contents

1 Project logo 4

2 List of participants 5

3 Project main goal(s) 6

4 Executive Summary 7

5 Technical approach 8

6 Milestones and expected results 10

7 Industrial Advisory Board 11

8 Co-ordinator contact details 13

1 Project logo

2 List of participants

The project co-ordinator is:

- IFI - Institut für Informatik, University of Innsbruck, Austria

Partners are:

- NUI - National University of Ireland, Galway, Ireland
- FZI – Forschungszentrum Informatik, Karlsruhe, Germany
- ISOCO - Intelligent Software Components S.A., Madrid, Spain
- OntoText Lab.- Sirma AI Ltd., Bulgaria
- HP – Hewlett Packard -UK
- BT- British Telecom - UK

3 Project main goal(s)

Web services promise a new level of service on top of current web. However, in order to employ their full potential, appropriate description means for web services need to be developed. Current technology around UDDI, WSDL, and SOAP provide limited support in mechanizing service recognition, service configuration and combination, service comparison and automated negotiation. Therefore, the main objectives of SWWS are:

- Provide a comprehensive Web Service description framework.
- Define a Web Service discovery framework.
- Provide a scalable Web Service mediation.

In order to evaluate the overall approach, SWWS will provide a Semantic Web based Web Service platform which will service as a basis for three case studies, one in the B2C area and two in the B2B area, that cover a wide range of potential further E-Business applications.

The goal of SWWS is to contribute in making web services a mature technology. This is a pre-requisite for their application in mission-critical applications. Businesses can be released from the burden of complex, slow and expensive software integration and focus instead on the value of their offerings and mission critical tasks. Then the Internet will become a global common platform where organizations and individuals communicate among each other to carry out various commercial activities and to provide value-added services. However, such an open and flexible E-commerce has to deal with many obstacles before it becomes reality.

We will develop a methodological framework and tools that enable fully flexible E-commerce also for Small and Medium Sized Enterprises (SMEs) relying on open, state-of-the-art standards and technologies. SWWS will provide a Semantic Web based Web Service platform which will service as a basis for three case studies, one in the B2C area and two in the B2B area, that cover a wide range of potential further E-Business application.

4 Executive Summary

Web Services connect computers and devices with each other using the Internet to exchange data and combine data in new ways. Web Services can be defined as software objects that can be assembled over the Internet using standard protocols to perform functions or execute business processes. The key to Web Services is on-the-fly software creation through the use of loosely coupled, reusable software components. This has fundamental implications in both technical and business terms. Software can be delivered and paid for as fluid streams of services as opposed to packaged products. It is possible to achieve **automatic, ad hoc interoperability** between systems to accomplish business tasks. Business services can be completely decentralized and distributed over the Internet and accessed by a wide variety of communications devices. Businesses can be released from the burden of complex, slow and expensive software integration and focus instead on the value of their offerings and mission critical tasks. Then the Internet will become a global common platform where organizations and individuals communicate among each other to carry out various commercial activities and to provide **value-added services**. There are important steps to take to bring web services and fully enabled E-commerce to reality. Anybody must be able to trade and negotiate with everybody else. However, such an open and flexible E-commerce has to deal with many obstacles before it becomes reality:

- Current web service technology around UDDI, WSDL, and SOAP does not yet provide a mature technology. Elements need to be added around document structures, semantics of data, business logics, message exchange sequences, and formalization. Combining Ontology technology with workflow approaches is required to enrich web service technology enabling their use in mission-critical applications. A comprehensive **Web Service Modeling Framework (WSMF)** has to be developed.

- Mechanized support is needed in **discovering services** and their offers are required. Currently, nearly all of this work is done manually which seriously hampers the scalability of electronic commerce. A Web Service discovery framework that goes beyond simple key-word-based registration means providing full-fledged Semantic Web-driven service discovery has to be defined based on approaches such as XML, XML Schema, RDF(S), DAML+OIL, and OWL.

- Means for **scalable mediation between different and heterogeneous services** fundamentally based on the P2P approach in order to provide direct connectivity between service requestors and service providers have to be developed. The mediation framework will substantially rely on the **semantics-driven descriptions of data and business logics**. This framework will also include means for configuration, composition and negotiation of Web Services.

Bringing Web Service for E-commerce to its full potential requires a **Peer-to-Peer (P2P)** approach combined with **Semantic Web** technology. The project tackles with the three bottlenecks in E-commerce introduced above. Therefore, we will develop a methodological framework and tools that enable fully flexible E-commerce also for Small and Medium Sized Enterprises (SMEs) relying on open, state-of-the-art standards and technologies. The consortium is further strengthened by an ***industrial advisory board*** whose membership includes some of the World's leading providers and users of Web technology, ranging from large multi-nationals to small and medium enterprises specializing in leading edge Web technologies.

5 Technical approach

The main workpackages of SWWS are:

WP1 Conceptual Analysis

T1.1 Analysis of existing B2B standards
T1.2 Analysis of Web Service proposals
T1.3 Overview on P2P architectures
T1.4 Overview on Semantic Web Languages
T1.5 Analysis of Agent Frameworks and their Relationship to Web Services

WP2 Description Framework

T2.1 First version of a Web Service Modelling Framework
T2.2 Mediation scenarios
T2.3 Second Version of a Web Service Modelling Framework
T2.4 Disseminate our WSMF proposal

WP3 Automatic Service Discovery

T3.1 Developing a Service Discovery Framework
T3.2 Focused Service Crawling Algorithm
T3.3: Implementation of the Service Discovery Framework

WP4 Mediation Architecture

T4.1 Development of a Semantic-driven Web Service framework
T4.2 Definition of a Agent architecture over Web Services
T4.3 Implementation of the mediation framework

WP5 Tools Development and Integration

T5.1 WSML Designer
T5.2 Java Binding for WSML
T5.3 Registry/Directory for WSML
T5.4 Graphical Tools for Service Composition
T5.5 Tool Integration

WP6 Case Study 1 – Business-2-Consumer

T6.1 Requirements Generation
T6.2 Service oriented analysis
T6.3 Ontological analysis
T6.4 Web Service design

WP7 Case Study 2 – Business-2-Business

T7.1 Requirements Generation and Analysis
T7.2 Service Definition
T7.3 Ontological analysis
T7.4 Conformance analysis

WP8 Case Study 3 – Business-2-Business

T8.1 Requirements Generation and Analysis
T8.2 Service DefinitionT8.3 Ontological analysis
T8.4 Conformance analysis

WP9 Dissemination and Exploitation

T9.1 Creation of the infrastructure
T9.2 Exploitation Plan
T9.3 Dissemination Plan

WP10 Assessment and Evaluation

WP11 Project management

6 Milestones and expected results

- A Web Service Modeling Framework (WSMF).
- A Semantic Web enabled web service discovering service.
- Means for scalable mediation between different and heterogeneous services based on semantics-driven descriptions of data and business logic.
- SWWS will provide a Semantic Web based Web Service platform realizing these concepts.
- SWWS provides three case studies, one in the B2C area and two in the B2B area, which cover a wide range of potential further E-Business applications.

7 Industrial Advisory Board

We are horned to have around 60 companies in the SWWS Industrial Advisory Board (to name some, but not all due to the limit of the space, please visit SWWS homepage for more information):

Company	City	Country
A Bit More B.V.	Amsterdam	Netherlands
ASP industry consortium (Siennax)	Amsterdam	Netherlands
Baan	Barneveld	Netherlands
Boeing Company	Seattle	USA
BT Advanced Communication Technology Centre	Ipswich	UK
CAESAR Systems Limited	London	UK
Choreology	London	UK
CognIT	Asker	Norway
CommerceWorks Group	Waterloo	Belgium
Convey	Brussels	Belgium
Corporate Information Solutions Ltd	London	UK
Cyscom Ltd	London	UK
DaimlerChrysler AG		Germany
Deloitte&Touche	Amsterdam	Netherlands
DestiCorp	London	UK
Deutsche Telekom-Brussels	Brussels	Belgium
Emorphia Limited	London	UK
EP-Logistics Oy	Helsinki	Finland
e-Strategy	Brussels	Belgium
Food and Agriculture Organization of the United Nations		USA
Forschungszentrum Informatik	Karlsruhe	Germany
France Telecom	Cesson Sevigne	France
Fujitsu Laboratories Ltd		Japan
Global Elecronic Finance	Brussels	Belgium
Heloisenet	London	UK
Hewlett-Packard	London	UK
IBM Rome	Rome	Italy
IBM Tokyo	Kanagawa	Japan
ILOG	Gentilly	France
Infonyte GmbH		Germany
InGenuity System	Alviso	USA
INTAP		Japan
International Network for Terminology	Vienna	Austria
InTouch nv	Amsterdam	Netherlands
IOSPress	Amsterdam	Netherlands
IRCAM	Paris	France
iSOCO	Madrid	Spain
MDR Partners	London	UK

Company	City	Country
Microsoft	London	UK
myview technologies	Büren	Germany
NEC		Japan
OKI		Japan
ontoprise	Karlsruhe	Germany
OntoText	Sofia	Bulgaria
Oracle	CA	USA
Pantechnik International	Brussels	Belgium
Photonica	London	UK
PricewaterhouseCoopers	Luxembourg	Luxembourg
QinetiQ	London	UK
RWE Com GmbH	Essen	Germany
SAP	Brussels	Belgium
SCA PACKAGING	ZAVENTEM	Belgium
SemanticEdge	Berlin	Germany
Semtalk	Berlin	Germany
Shinka Technologies AG	Berlin	Germany
SpiritSoft	London	UK
STMicroelectronics	Geneva	Austria
Sviluppo Italia	Rome	Italy
Swiss Life	Zurich	Switzerland
textkernel	Amsterdam	Netherlands
T-Nova Deutsche Telekom Innovationsgesellschaft	Darmstadt	Germany
TXT e-Solutions SpA	Milano	Italy
uma information technology AG		Austria
WebGiro	Lidingö	Sweden
WTCM - CRIF	Heverlee	Belgium
Xpert Service	Mechelen	Netherlands

8 Co-ordinator contact details

Homepage

http://swws.semanticweb.org

Project coordination:

Univ-Prof. Dr. Dieter Fensel
Leopold-Franzens Universität Innsbruck (IFI)
Institut für Informatik
Technikerstrasse 13
A-6020 Innsbruck, Austria

Tel: +43 512 507 6489
Fax: +43 664 4932607

E-mail: dieter.fensel@uibk.ac.at

Co-chair

Janet Bruten
HP Labs Bristol

Tel: +44-117 312 8700
E-mail: janet bruten@hp.com

Contact Person

Juan Miguel Gomez
Leopold-Franzens Universität Innsbruck (IFI)
Institut für Informatik,
Technikerstrasse , 13
A-6020 Innsbruck,
Austria

Tel: +43 512 507 6489
Email: juan.miguel@uibk.ac.at