Open Source Supply Chains

Enabling Software Technologies and Methodologies for Information Supply Chains (Open Source)

An Electronic Commerce Workshop Project Group supported by the European Committee for Standardization
The Open Source Supply Chains project

- runs from November 2001 until October 2002
- “includes”
  - Seven RTD IST projects
  - Four standardization initiatives
  - Two active CEN/ISSS projects

- will result to the development of
  - a reference model for the establishment and lifecycle management of Open Source Supply Chains and of the corresponding supporting reusable software components for communications between autonomous supply chain network nodes
  - Two business cases
  - all of which comprise a CWA!
Project Challenge and Vision

– Achieve "marriage" of research conducted within the context of running IST RTD projects with standardization technologies and methodologies

C:\>How?_

– integrating already existing project concepts developed under the IST Programme umbrella while taking into consideration
– methodologies and frameworks developed by standardization bodies and industry consortia
Participating IST RTD projects

- This is a project built upon results of the following RTD projects of the Information Society Programme:
  - ADRENALIN
  - CAWICOMS
  - LIAISE
  - Co-OPERATE
  - INSPIRE
  - WHALES
  - MEDIAT SME

What do they share?

Common requirements and developments in the area of supply chains, networked and smart organizations.
IST Project Representatives/Participants

- ALTEC SA, UNISOFT (ADRENALIN)
- Universität Klagenfurt (CAWICOMS)
- TXT solutions (LIAISE, INSPIRE)
- INESC-Porto (Co-OPERATE, MEDIAT SME)
- Gruppo Formula (WHALES)

CEN/ISSS Participants

- CEN/ISSS EC Workshop projects
  - EC Integration Meta Framework (ECIMF)
  - Architectures and Models for Electronic Commerce
Specific Open Source project goals

- development of a reference model for promoting the establishment and lifecycle management of open and scalable according to business objectives Supply Chain communities
- which are built around a number of building blocks developed within the context of participating projects
- The idea is to utilize concepts from the “open source paradigm” in the field of conventional supply chains
  - enabling the creation of re-usable software components for communications between autonomous supply chain network nodes which can easily
    - integrate new autonomous nodes
    - adopt any technology and standard to be an integrated part of the supply chain
  - providing the open license to develop, test and improve them, ensuring this way an open future collaboration
The Proposed Approach
Harmonized utilization of the already existing IST RTD projects commonalties composed in two levels

Building blocks for establishment and lifecycle management of Open Source Supply Chains

Methodologies and tools for support and validation of the developed framework
Technology Interoperability Level
utilizing results of four IST projects

Mobile and Intelligent Agent technology
supporting interoperability aspects amongst structures that constitute the OSSC framework.

Distributed Configuration techniques
inherent to OSSC structures promoting flexibility to environment adaptation needs.

ADRENALIN
Information Supply Chain
Fractal Company
Mobile Agents platform

CAWICOMS
Web-based configuration techniques

LIAISE
Supply Chain Management
Distributed Workflow management model

Co-OPERATE
Supply Chain Management
Intelligent Agents platform

Framework of principles concerning the Formalization, Navigation and lifecycle Management of conventional Supply Chains
Validation and Evaluation tools of the developed infrastructure

Support tools for the successful implementation of the Technology Interoperability level

Business Interoperability Level
utilizing results of three IST projects

INSPIRE
Competencies management principles
BPR methodology
Project Management Support tool

MEDIAT SME
Methodology and support tool for introducing e-business solutions to SMEs

WHALES
Planning and management infrastructure for supporting complex distributed schemas

CEN/ISSS ECIMF project
Integration tool for promoting embodiment of new entities, standards and technologies into the distributed platform of OSSC
Interaction of the OSSC initiative with standardization methodologies

will be employed in order to:

- Analyze and review interoperability aspects
- Support in a standardized way the identification, establishment and lifecycle management of core OSSC building blocks

**In the organizational layer of OSSC**
- WFRM (Workflow Reference Model of WorkFlow Management Coalition)
- Supply Chain Operation’s Reference (SCOR) Model of Supply Chain Council

**In the technological layer of the OSSC**
- MDA (Model Driven Architecture) of OMG
- the ebXML initiative of OASIS/UNCEFACT
The Open Source reference model (1/2)

– The challenge deals with bridging the gap between:
  – the actual business model of a Supply Chain participant supported by a specific platform A with
  – the business model of another supply chain participant supported by a different platform B

This means:
  – different organizations with
  – different processes,
  – different information flows
The Open Source reference model (2/2)

– Organizes the business framework for mapping all relevant information in three abstract models:
  – the Open Source Supply Chains Abstract **Object** Model
    – which provides templates (including both structural and behavioural aspects) for the Supply Chain participants involved in the provision of a service or product
  – the Open Source Supply Chains Abstract **Process** Model
    – which provides process (operating sequence) templates for the operations to be executed by the Supply Chain participants and
  – the Open Source Supply Chains Abstract **Interaction** Model
    – which describes interaction mechanisms providing communication protocol templates for the communication between the Supply Chain Participants
The “big” picture of the architecture

OSSC Abstract Object model
provides OSSC object model

OSSC platform Class model (functional and Operational)
implementation

OSSC platform Activity model
implementation

OSSC platform Collaboration model
implementation

OSSC platform Interaction model
provides templates for OSSC interactions

OSSC platform Sequence / Interaction model

OSSC Abstract Process model
provides templates for the process control flow

OSSC Abstract Interaction model

OSSC building blocks logic

OSSC Node
Configurator
Agent platform

OSSC Node
Configurator
Agent platform

OSSC Node
Configurator
Agent platform

Brussels, 14 June 2002
Steps for the development of the CWA

- **December 01**: First version of interim draft of participating project relevant architectures and modelling work.
- **January 02**: First version of interim draft on real business case scenarios.
- **February 02**: First version of interim draft for the definition of the technical integration of the building blocks.
- **July 02**: First version of interim draft of open source description and positioning with standard architectures and technical specifications for the integration of building blocks and the standard architectures.
- **September 02**: Pilot application.
- **CWA version 0.5 (June 2002)**
- **CWA v0.6**
- **CWA v0.7**
- **Final draft Open Source CWA v1.0 (October 2002)**

Brussels, 14 June 2002
Is that all?…
Lessons

- The main lesson of this Open Source integrated initiative lies in the clustering of IST projects that develop software applications in different distributed enterprise environments.

- The chief benefit is that Open Source represents a new type of project for which attention in their planning, positioning and engineering should be given.

- Especially now in the face of FP6 Integrated Projects, RTD projects should be helped - if not driven … – to overcome their introversion, and communicate their results with a wider community of users, competitors and other actors.

- CWAs act thus as a vehicle for leveraging this type of communication, and possibly add value.
In conclusion…

– Though we originally foresaw that lack of commitment would increase the volume of our work, we have – correctly, as it now has proven – identified that this would be helping us in strengthening the residual value of the project results (a point at which a majority of RTD projects suffers).

– Though Open Source runs on a voluntary base with no access to direct funding this should not be considered as a barrier justifying also the low commitment, as resources for participation in Open Source may usually remain at the discretion of each participant and can be assigned through Dissemination and / or Exploitation activities of each particular project.