Table of Contents

• Goals of the SPRINT Architecture
• Components
• Related Standards – RDF and OSLC
• The Platform – Rational Jazz and Design Manager
• Distributed Collaboration
• Data and control flow
Components

Internet of Model Elements

Designers-to-Model Connectivity

Physical-to-Logical Connectivity

Designers-to-Physical Device Connectivity

Internet of System Engineering

Internet of Designers

Internet of Physical Devices
Architecture Components

• Tools
• Applications
• SII – Semantic Interoperability Integration
• SSI – Semantic Service Integration
• Devices
• Device platforms
Relationship Hub (RH)
Protocols and Data formats

- Data is coded in RDF – Resource description Framework
- Communicating in OSLC – Open Services for Lifecycle Collaboration
- Platform is Jazz – supporting OSLC and RDF with security and reliability
OSLC Servers and Clients

- Clients may have no repository
- Clients cannot respond to queries
- Clients are not servers
- BUT: Clients can participate in OSLC

Diagram:

- OSLC Client
- OSLC ToolA
- Repository A
- OSLC ToolB
- Repository B
Collaborative Environment
Distributed Collaboration

Partner A

Partner B

Partner C
Multi-project Distributed Collaboration
Concrete Example

Diagram showing network connections between EADS RZ, EADS YZ, IAI YZ, and IAI RZ. Key components include:

- DOORS 9.2
- SA 11.3
- EADS web br.
- IAI web br.
- IAI tools
- HP QC

Connections include:

- EADS YZ connected to Internet GZ
- IAI YZ connected to IAI RZ
- EADS RZ connected to EADS YZ

Network protocols and IP addresses are indicated:

- EADS YZ to Internet GZ: 9443.9444
- IAI YZ to IAI RZ: 9443.9444
- DOORS 9.2 to SA 11.3
- EADS web br. to Jazz server
- IAI web br. to Jazz server

Clients and jazz servers are highlighted in the diagram.
Abstraction of Distributed Model Sharing

Two-way data flow between 2 tools on separate SII nodes and 2 repositories via SII collaboration.

Data flow from tool to application via local SII node and repository.
Jazz Integration Architecture
Over the Jazz Foundation Server
SPRINT Data and Control Flow

OSLC structure

Proprietary structure

SII – SPRINT Information Bus

SSI – Semantic Services Integration

Data processing path

Transform

Transform

Transform

Transform

Proprietary Tool format

RDF format

Proprietary Tool format

Example: IBM Rational Rhapsody SysML

OSLC Lite-HRC structure

Intermediary format step 2

Intermediary OSLC format step 1

One of intermediary OSLC domain structures

OSLC RDF

SII RDF Repository

Interm 2 → common Plugin

Interm 1 → Interm 2 Plugin

Domain → Interm 1 Plugin

Tool → domain Plugin

Export

R

T

Transform

Transform

Transform

Transform

RDF format of Proprietary structure

SII RDF Repository

HRC lite

OSLC

RDF

RDF

RDF

RDF
Step 1:SysML Model

Step 2:Plain RDF Model

Step 3:OSLC RDF Model

Step 4:Common Model

Step 5:Common Model in relation to other common model elements

IBM Rational Rhapsody

SysML

CAx-Tool provides the translation into plain RDF.

CAx-Tool sends RDF to SII Using DM or RIO-SII takes care about OSLC transformation.

NOTE: In this step there are may different versions of the RDF representation (*.nt, *.rdf)

NOTE: In this step there just the OSLC Domain specific versions remain.

Translation the OSLC RDF into a common model using the HRC lite meta-model by the SSI

NOTE: After this step just one model can be exists.

Physical adding of the common model as RDF file into the repository.

SII Repository
SPRINT Data and Control Flow
Implementation
Andreas Keis
Engineering & Architecture
Manager Software Engineering

EADS Innovation Works
Quadrant Campus, Newport NP10 8FZ
United Kingdom

Tel: +44 (0) 1633 71 4760
Fax: +44 (0) 1633 71 3300
Mobile: +44 (0) 7970381972

Email: andreas.keis@eads.com
Linkedin: http://www.linkedin.com/in/andreaskeis