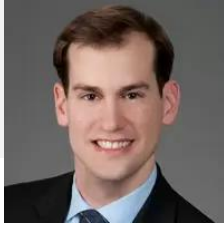


Introduction to Open Services for Lifecycle Collaboration (OSLC)

Axel Reichwein
Consultant, Koneksys
January 25, 2015



Axel Reichwein

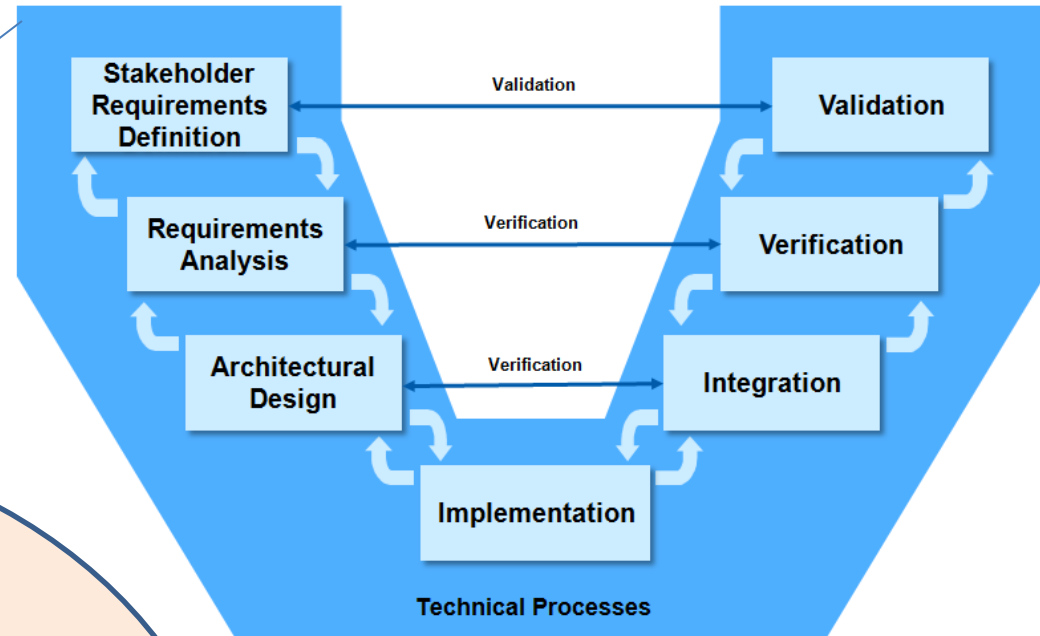
- As PhD student and postdoc: UML-based and SysML-based integration solutions to bridge the gap between systems engineering and discipline-specific engineering
- As consultant: Implementation of (open-source) OSLC-based solutions including OSLC adapters for MagicDraw SysML, Simulink, AMESim, and PTC Integrity
- Co-Chair of the OMG OSLC4MBSE Working Group to apply OSLC beyond software engineering

KONEKSYS

- **Consultants specializing in providing integration solutions based on OSLC**
- **Develop OSLC solutions** including OSLC adapters, clients, synchronization middleware, triple stores, SPARQL endpoints
- **Contribute open-source OSLC solutions** to Eclipse Lyo
- **Provide consulting** for developing OSLC solutions
- **Provide OSLC training** ranging from 1-day tutorials to advanced 4-day courses

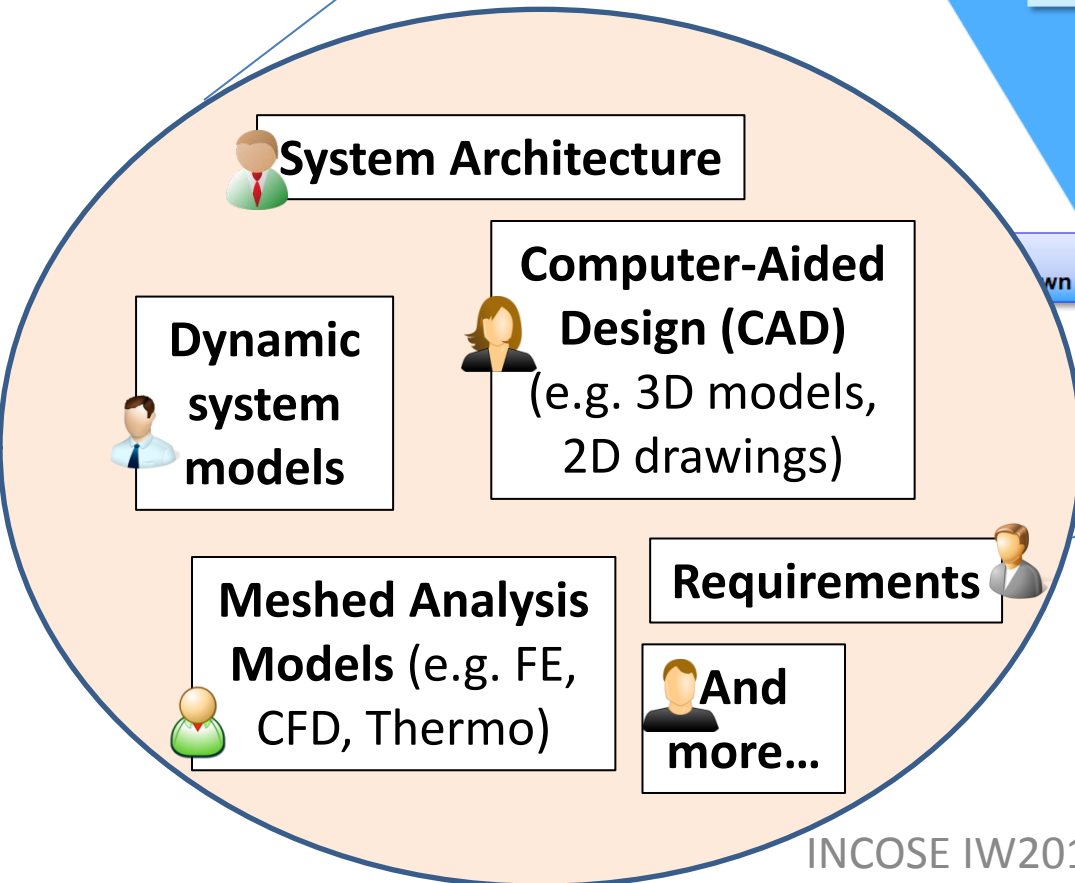
Models for Architectural Design

ISO/IEC/IEEE 15288-Based SE Process V-Model



Only the core SE Technical Processes are shown. Also shown are the Transition, Operations, Maintenance, and Disposal Processes.

Many Relationships between Models



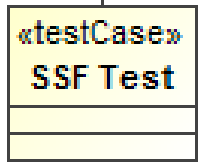
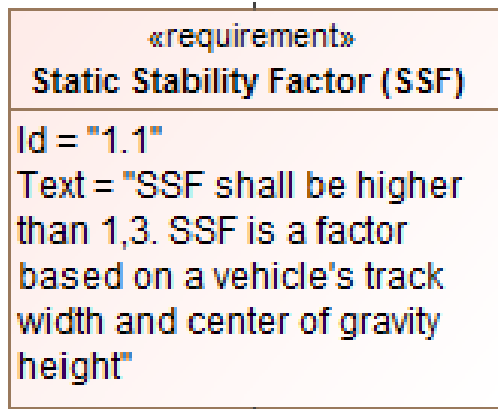
Problem: Rollover Risk of SUVs

- Higher center of gravity -> higher risk of rollover
- More than a third of all *fatal* crashes in the US are rollovers!



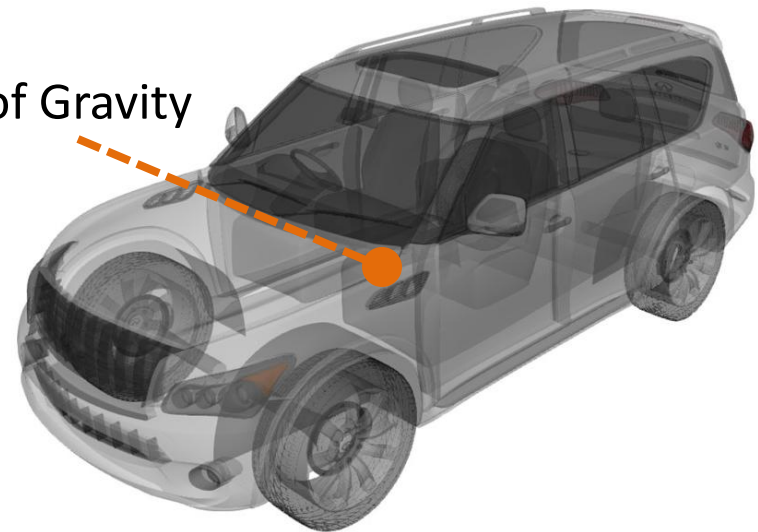
<http://www.cars.com/go/crp/buyingGuides/Story.jsp?section=SUV&story=suvSafe2012&subject=stories&referer=&year=New>

Static Stability Factor Test



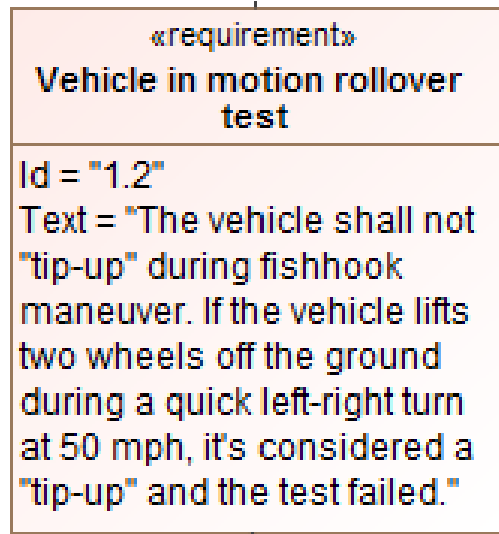
System Engineer
defines SSF Test Case

Center of Gravity

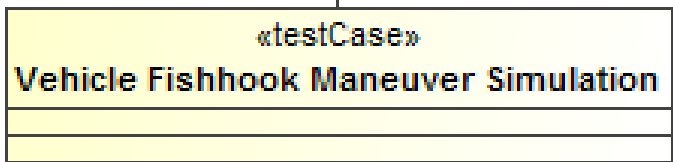


Mechanical Engineer computes center of gravity height of new vehicle through geometric model

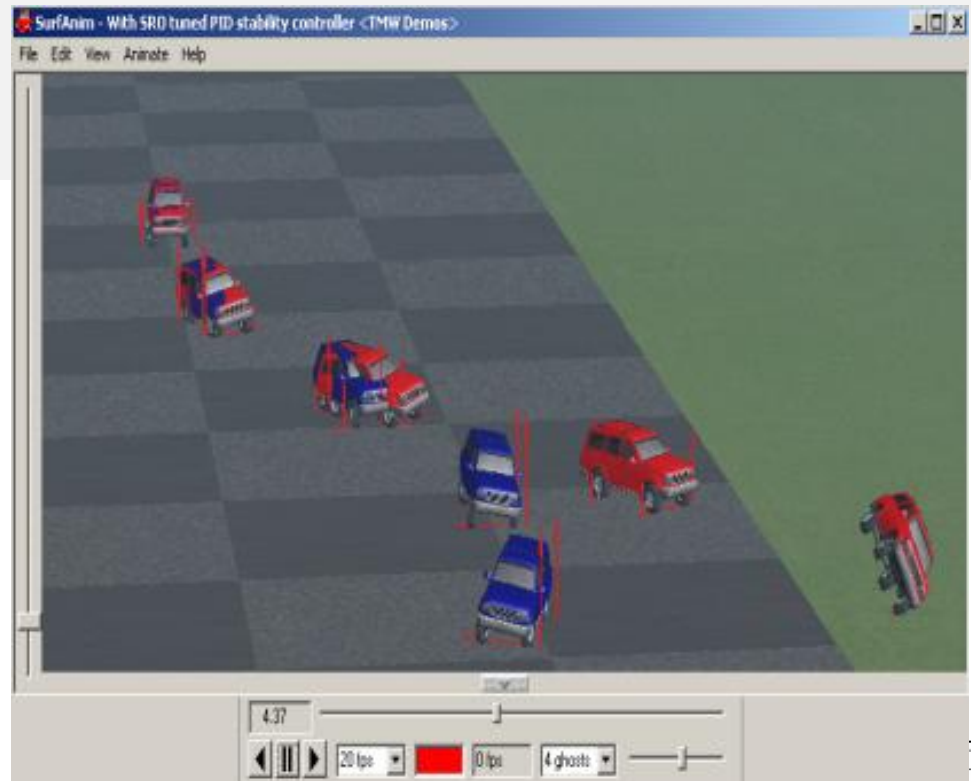
Fishhook Maneuver Simulation



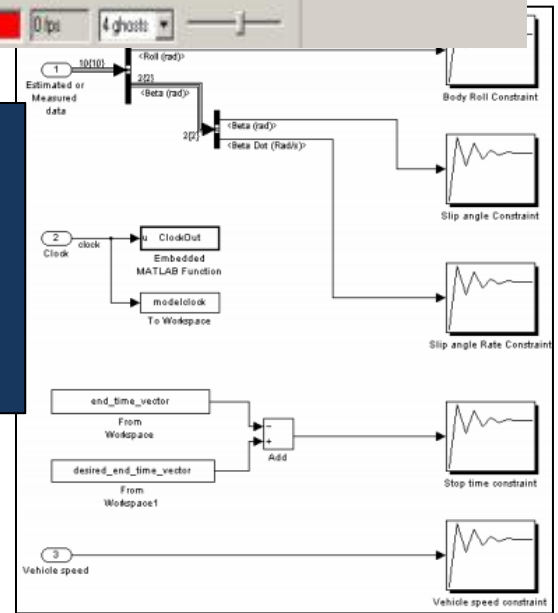
«verify»



System Engineer defines simulation test case

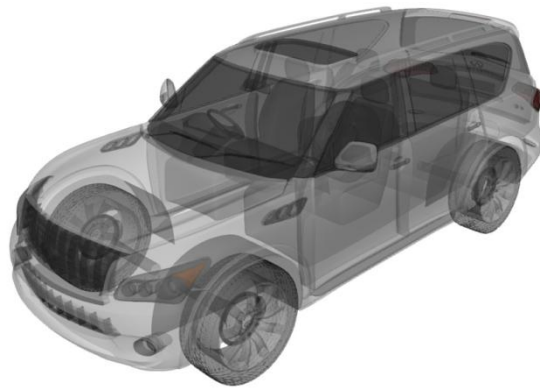


Mechanical Engineer performs simulation with dynamic system model



http://www.mathworks.com/tagteam/49380_2008-01-0579_Cherian_Final_1.10.08.pdf

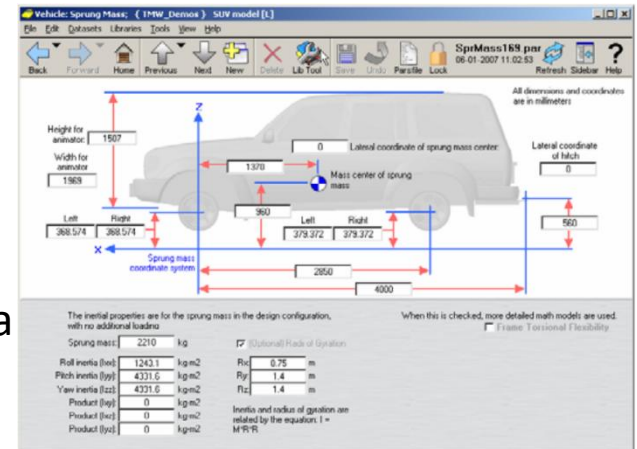
Link between COG Parameter of Geometric Model and Simulation Model



Center of Gravity



+ Moments of Inertia

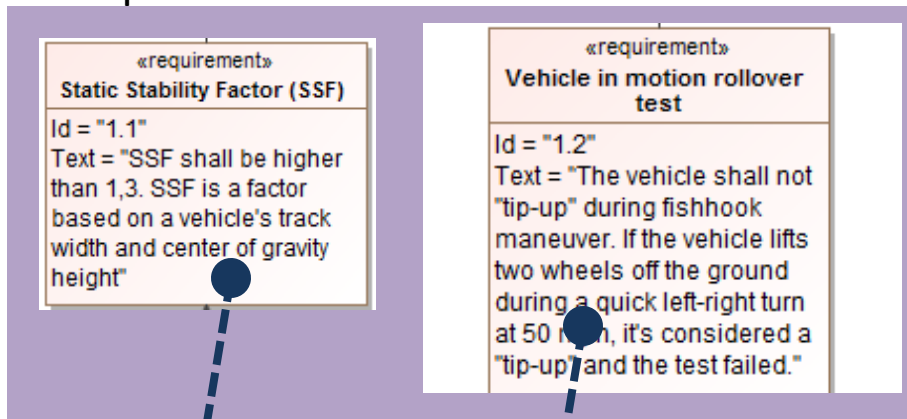


Center of gravity in geometric model

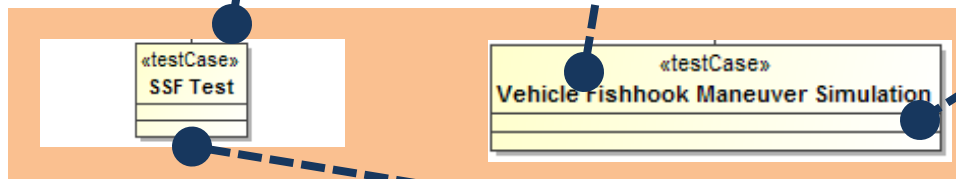
Center of gravity in simulation model

Relationships between Engineering Data

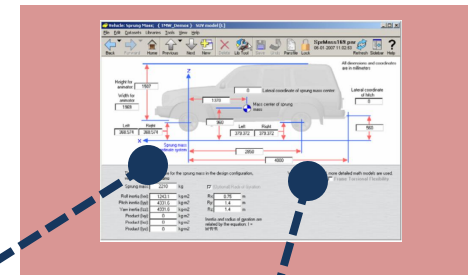
Requirements



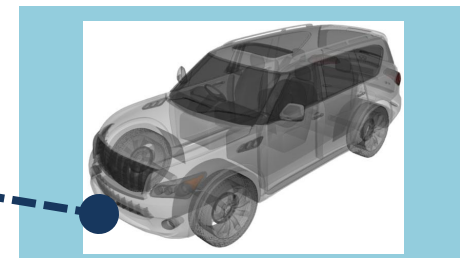
Test Cases



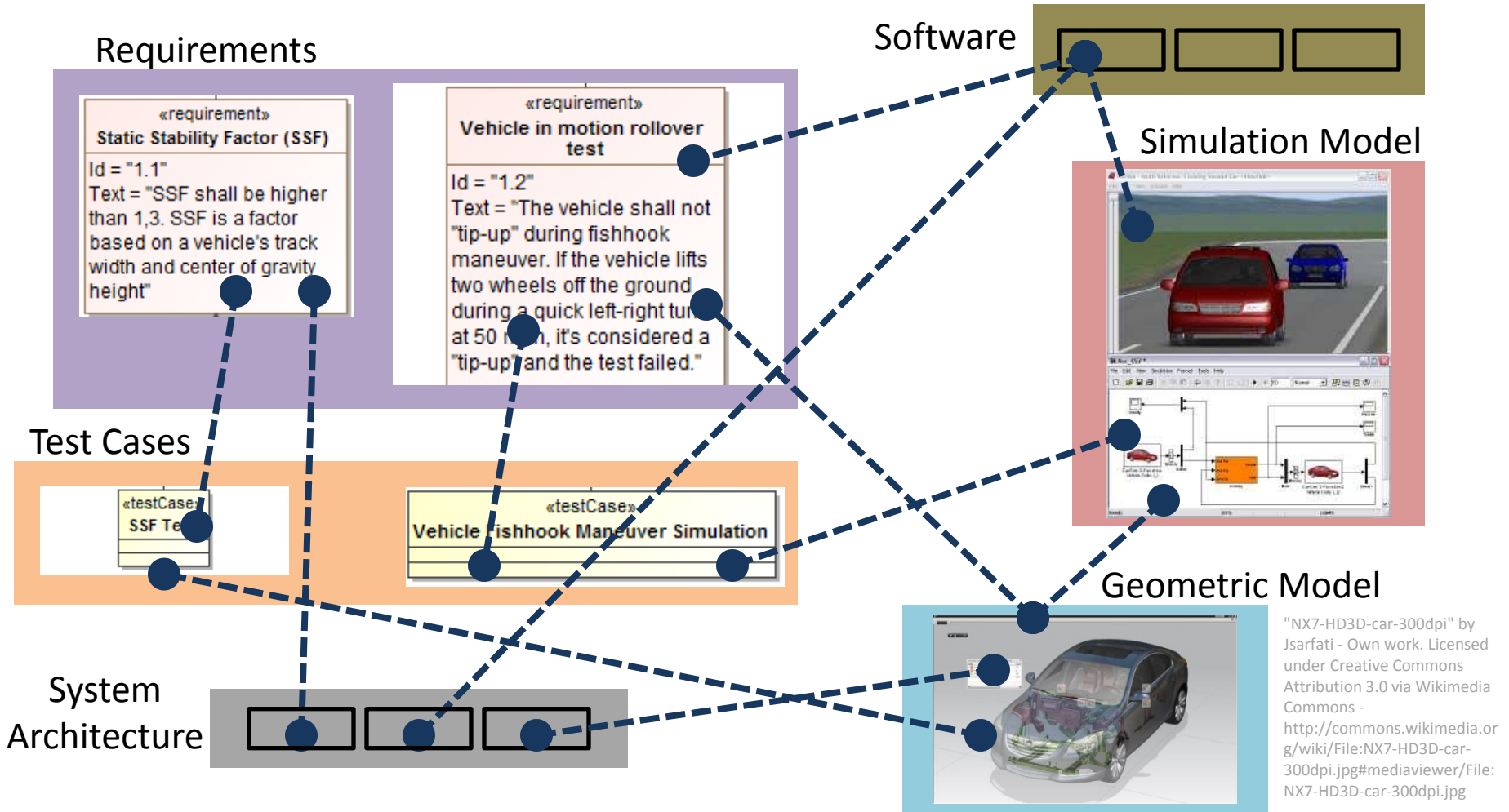
Simulation Model



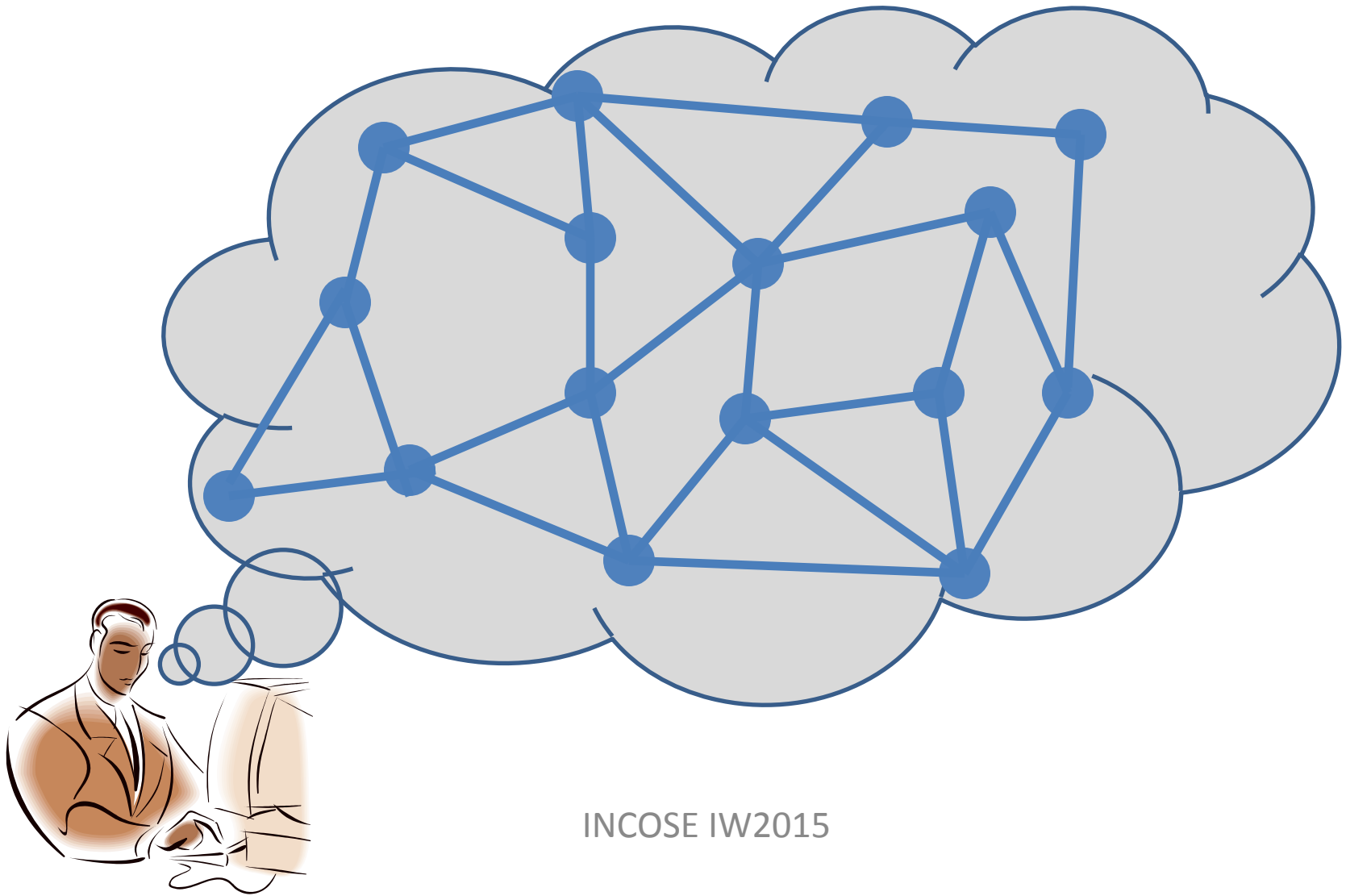
Geometric Model



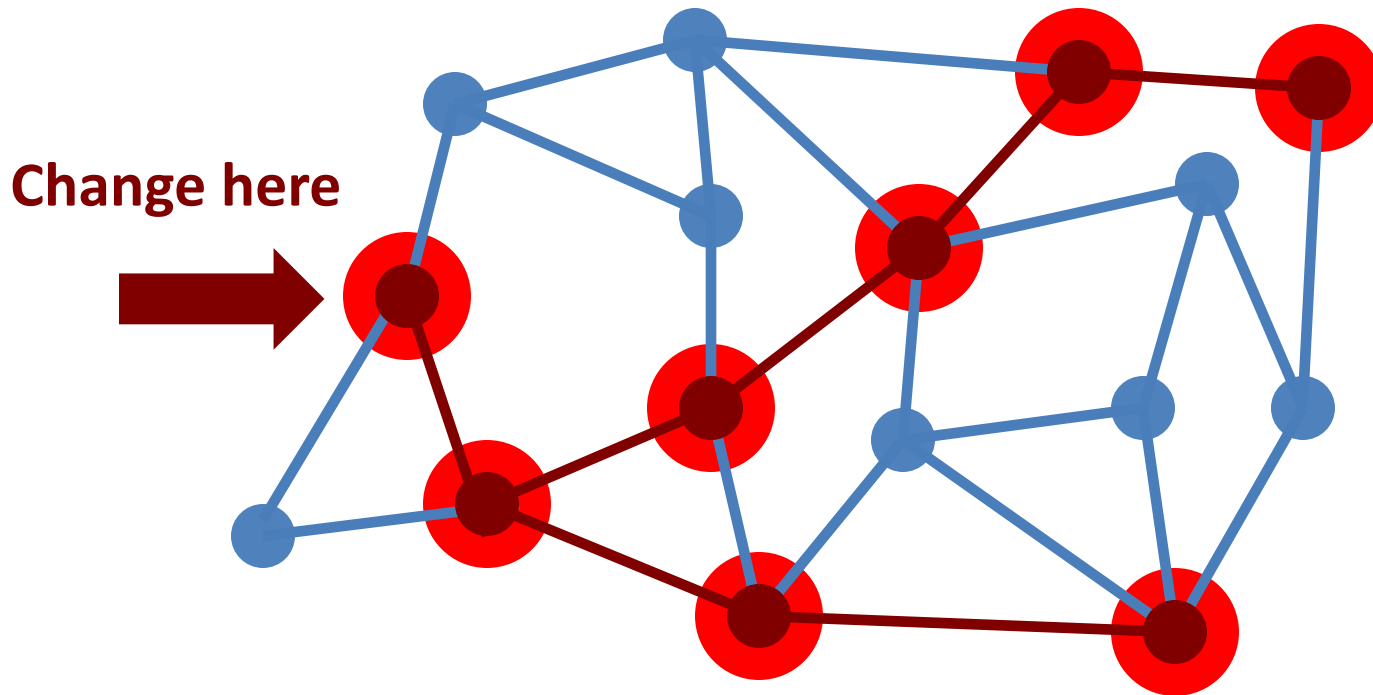
Reality in Complex System Design: (Too Many) Relationships between Engineering Data



Network of Relationships

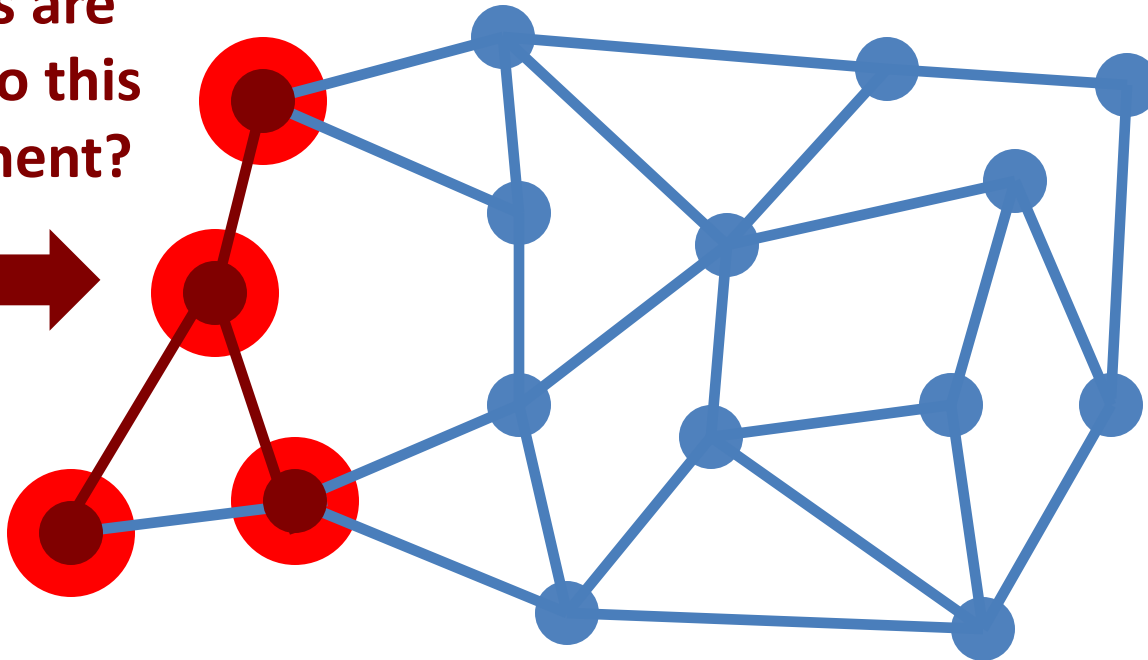


Impact Analysis

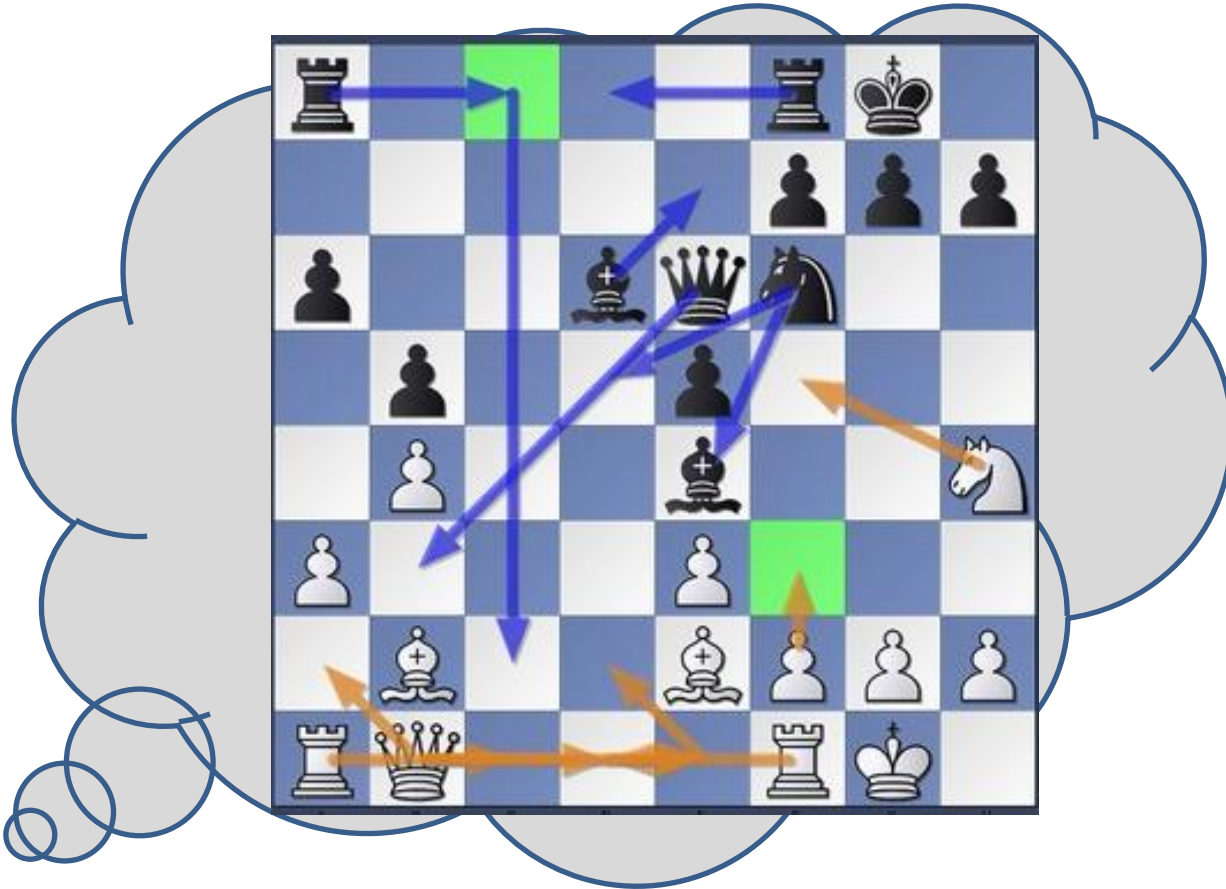


Queries

Query: Which elements are related to this requirement?



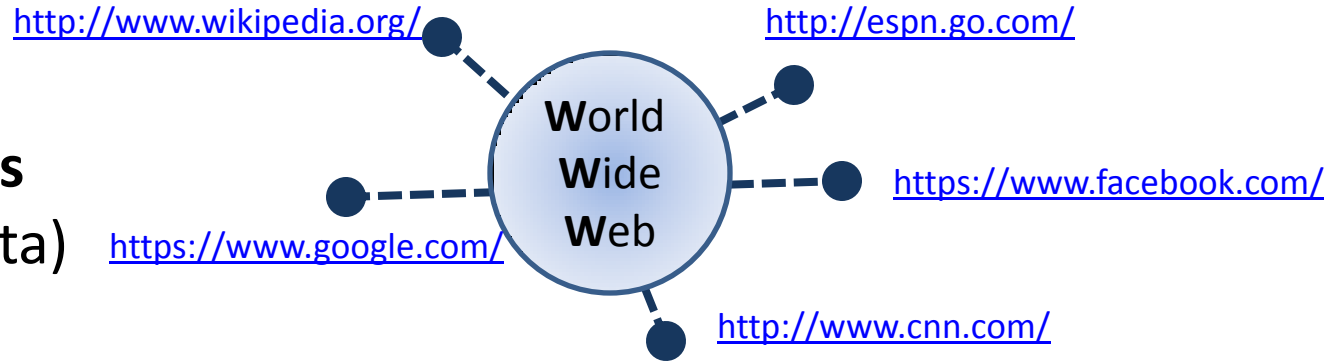
Overview of Relationships



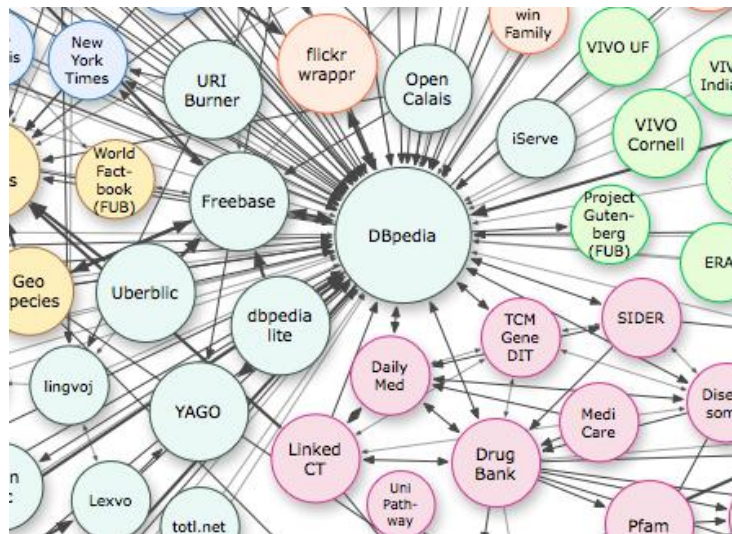
Good Overview => Better Decisions

Relationships on the Web

Linked Web Pages
(Unstructured Data)



Linked Data
(Structured Data)




"Lod-datasets 2010-09-22 colored" by Anjeve, Richard Cyganiak - Own work. Licensed under Creative Commons Attribution-Share Alike 3.0 via Wikimedia Commons - http://commons.wikimedia.org/wiki/File:Lod-datasets_2010-09-22_colored.png#mediaviewer/File:Lod-datasets_2010-09-22_colored.png

Linked Data Example

Example DBPedia Query: Cities in Germany with population larger than 1Mio?

```
SELECT ?City ?Population
WHERE {
  ?City dbpedia:country dbpedia-res:Germany.
  ?City rdf:type dbpedia:City.
  ?City dbpedia:populationTotal ?Population.
  FILTER (?Population > 1000000)
} order by ?Population
```



City	Population
<u>Cologne</u>	1010269
<u>Munich</u>	1420000
<u>Hamburg</u>	1796077
<u>Berlin</u>	3499879

<http://iris.cnrs.fr/~pchampin/spark/gmapv3.html>

Open Services for Lifecycle Collaboration

- OSLC = Reusing the Web for tool integration
- Based on Web standards (**Linked Data and RESTful Web Services**)
- Initiated by IBM
- Adopted by many tool vendors
- Managed by OASIS

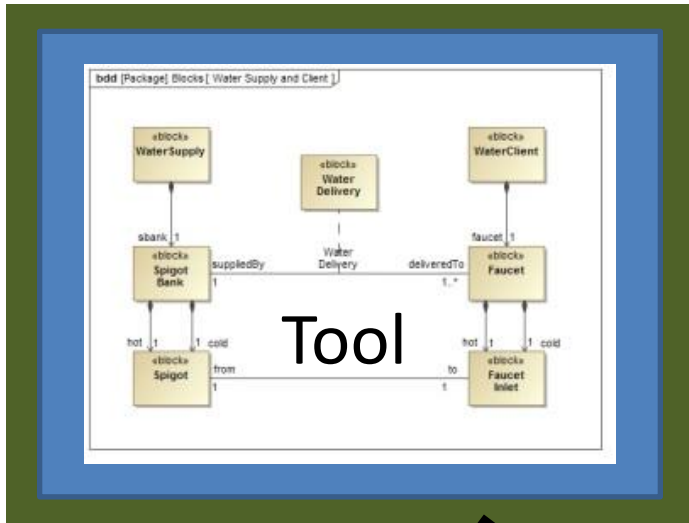
<http://open-services.net/wiki/communications/OSLC-Stickers/>
licensed under CC BY 3.0 US



Overview of Operations on OSLC Resources

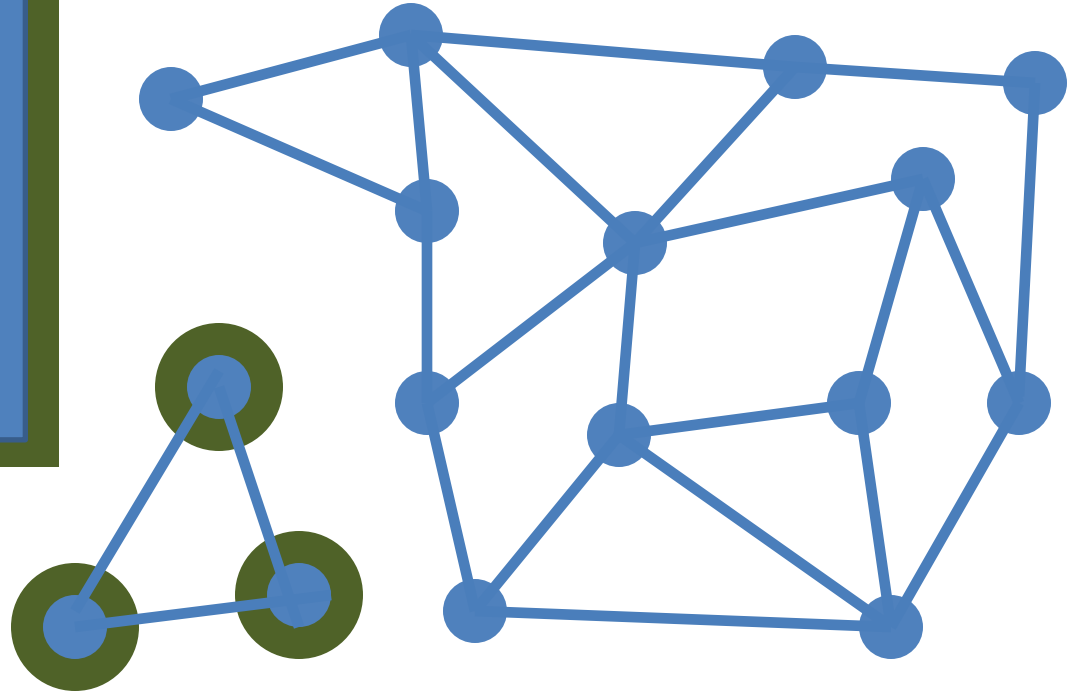
- **Publishing** OSLC resources
- **Retrieving** OSLC resources
- **Linking** OSLC resources across tools
- **Adding/Updating/Deleting** OSLC Resources
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Publishing OSLC Resources



Tool

OSLC Adapter



Linked Data Principle 1

Use URIs to denote things

«requirement» Master Cylinder Efficacy
Id = "S5.4.1" Text = "A master cylinder shall have a reservoir compartment for each service brake subsystem serviced by the master cylinder. Loss of fluid from one compartment shall not result in a complete loss of brake fluid from another compartment."

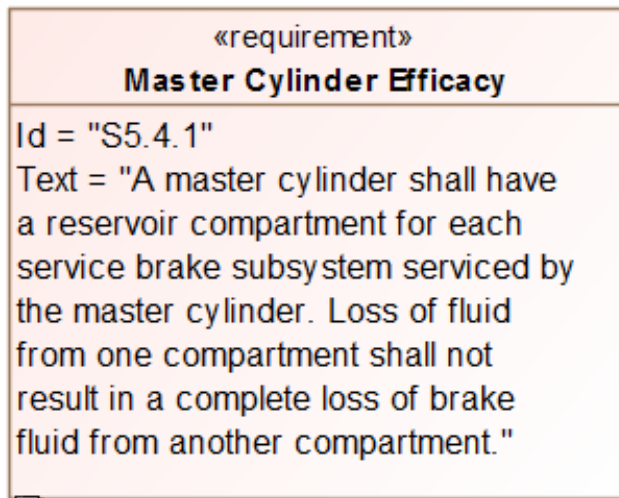
Requirement in
Systems Engineering Tool

URI of Requirement

<http://myDomain/myTool/myProject/requirements/S5.4.1>

Linked Data Principle 2

Use **HTTP URIs** so that these things can be referred to and looked up



Requirement in
Systems Engineering Tool

URI of Requirement

<http://myDomain/myTool/myProject/requirements/S5.4.1>



HTTP



Linked Data Principle 3

Provide useful information about the thing when its URI is dereferenced, leveraging standards such as **RDF**, SPARQL.

«requirement»
Master Cylinder Efficacy

Id = "S5.4.1"
Text = "A master cylinder shall have a reservoir compartment for each service brake subsystem serviced by the master cylinder. Loss of fluid from one compartment shall not result in a complete loss of brake fluid from another compartment."

Requirement in
Systems Engineering Tool

URI of Requirement

<http://myDomain/myTool/myProject/requirements/S5.4.1>



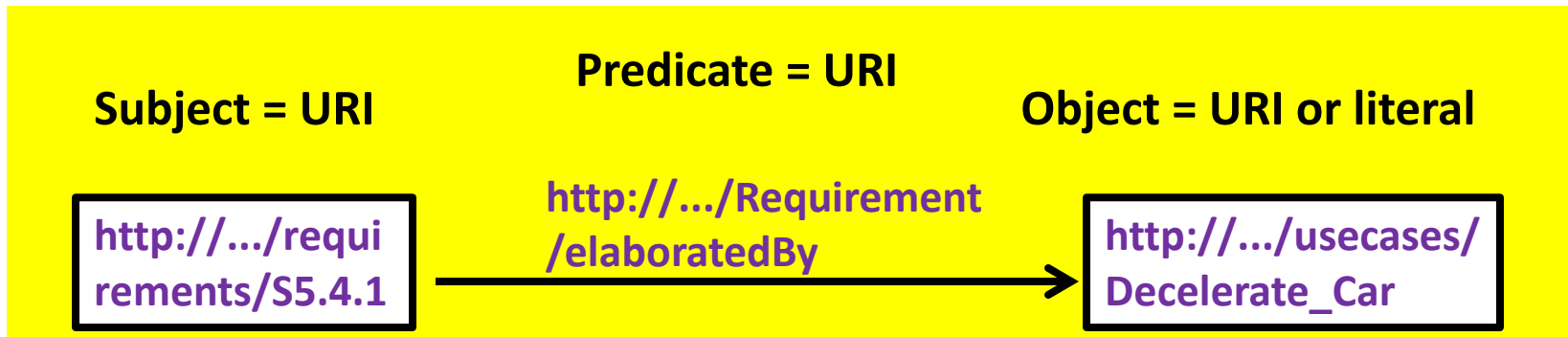
HTTP



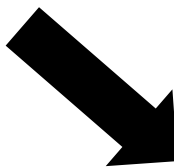
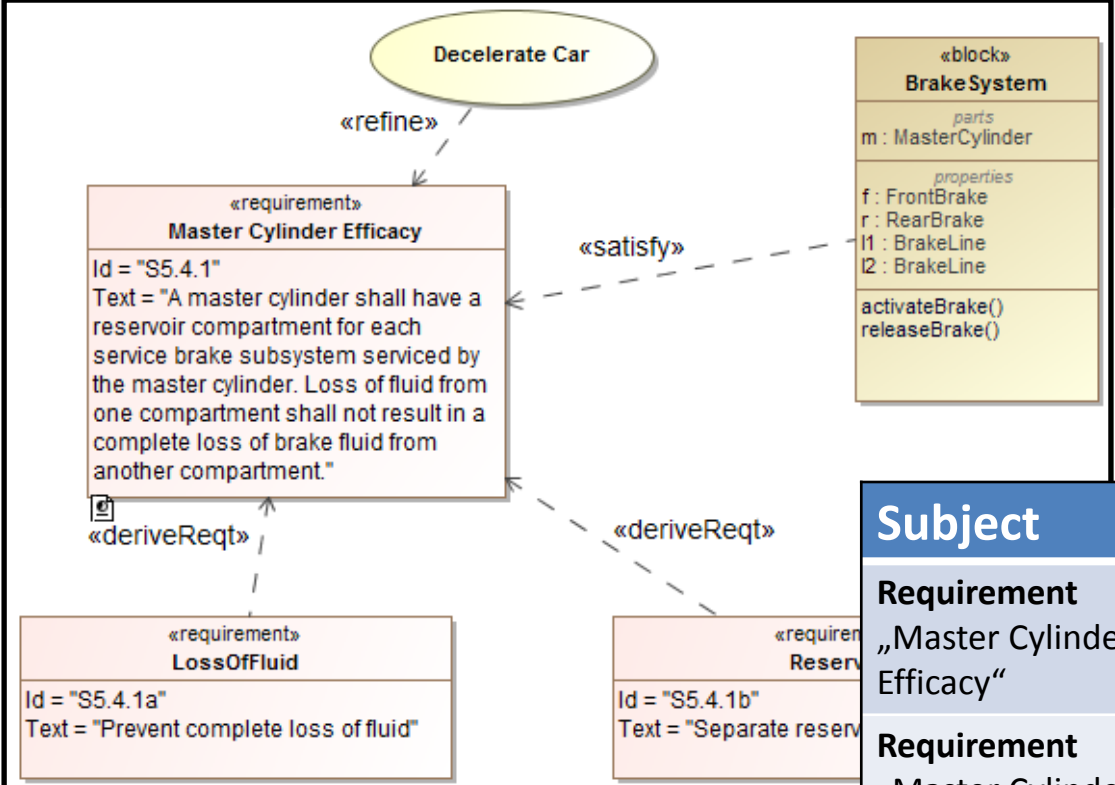
**W3C standard for
data interchange
on the Web**

Resource Description Framework (RDF)

- Statements in the form of **subject-predicate-object expressions (triples)**
- **W3C standard** for data interchange on the Web
- Used for semantic reasoning
- Variety of serialization formats (e.g. JSON-LD)



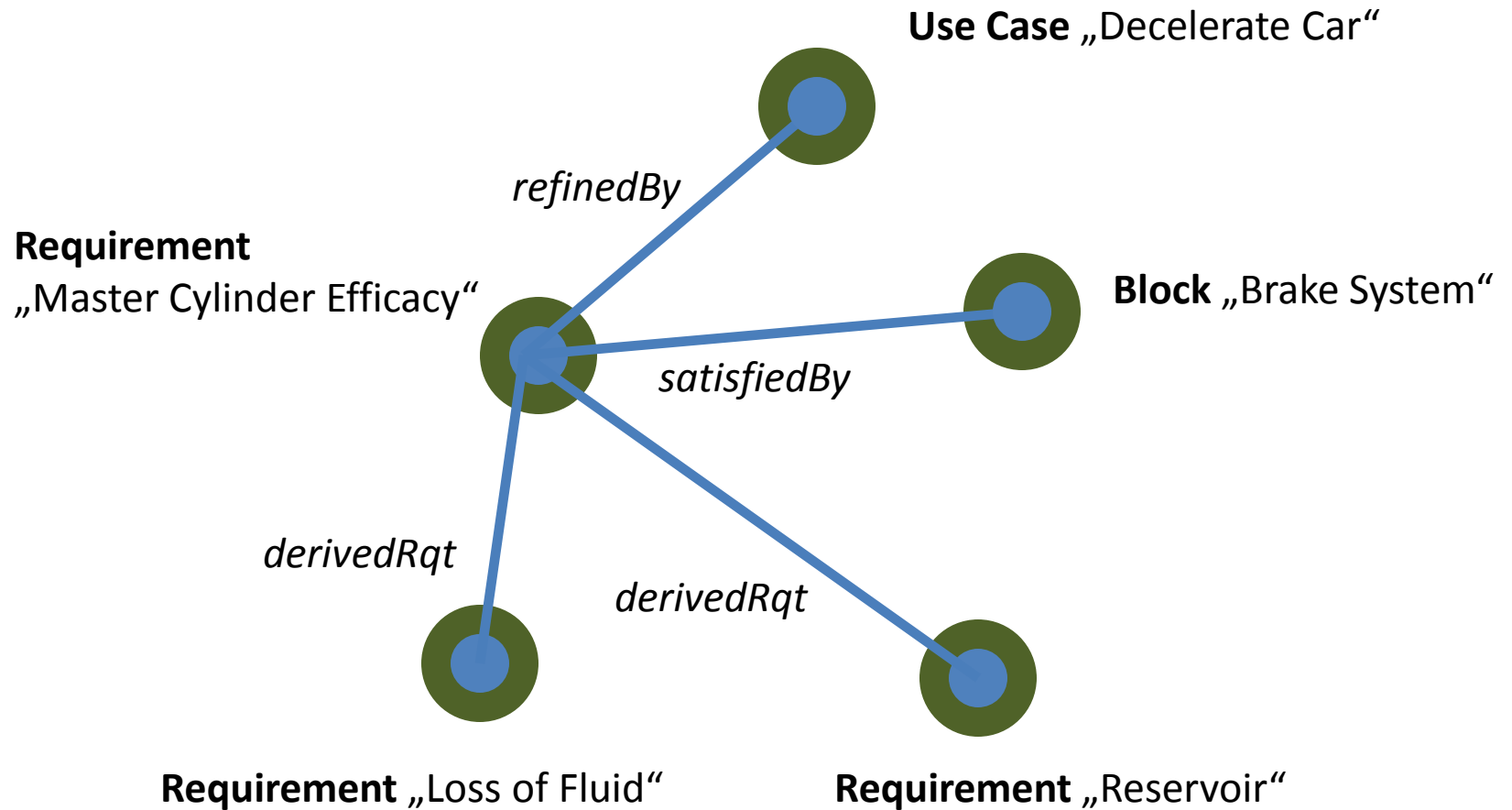
RDF Example



Subject	Predicate	Object
Requirement „Master Cylinder Efficacy“	refinedBy	Use Case „Decelerate Car“
Requirement „Master Cylinder Efficacy“	satisfiedBy	Block „Brake System“
Requirement „Master Cylinder Efficacy“	derivedRqt	Requirement „Loss of Fluid“
Requirement „Master Cylinder Efficacy“	derivedRqt	Requirement „Reservoir“

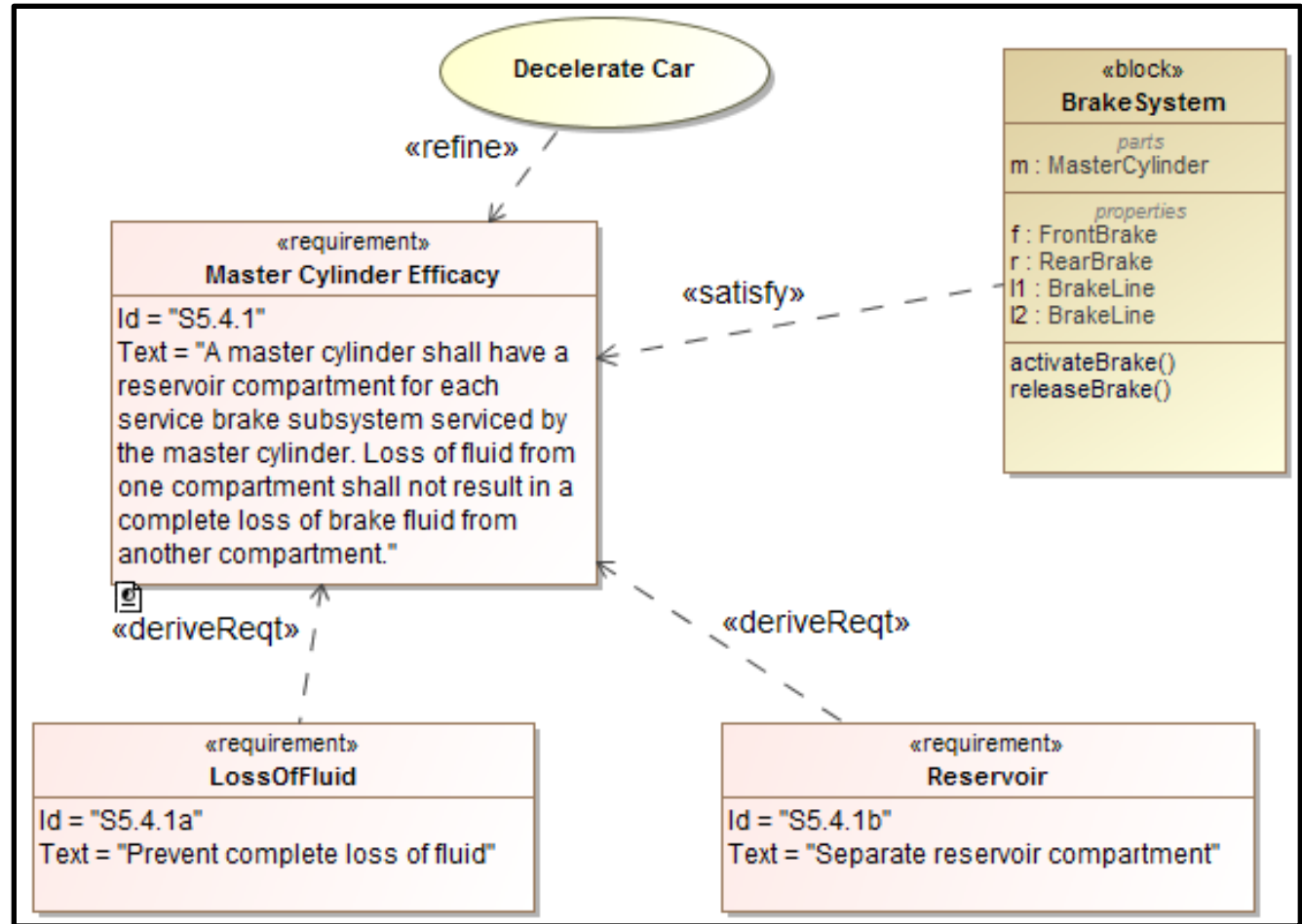
**RDF =
subject-predicate-
object statements
(triples)**

RDF Graph Representation



Linked Data Principle 4

Include links to other related things (using their URIs) when publishing data on the Web.



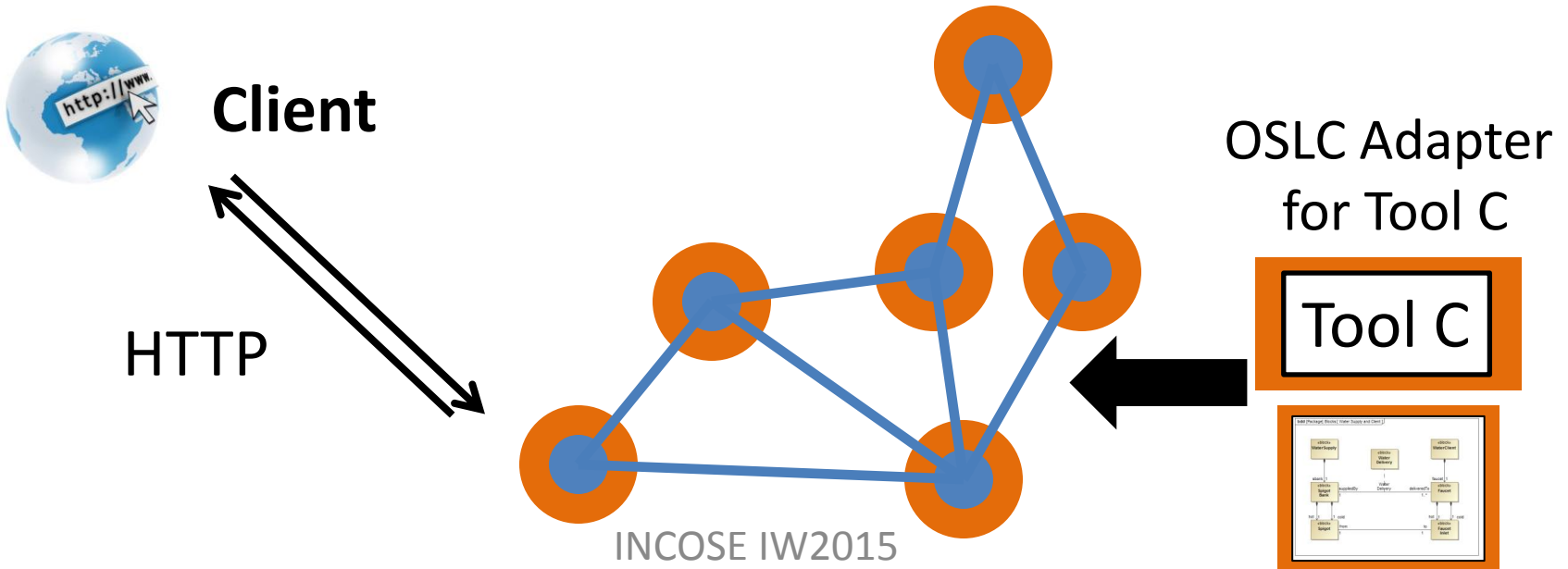
Retrieving Resources

HTTP Request

URL: `http://.../requirements/S5.4.1`

GET Method

Accept: `application/rdf+xml`



«requirement»

Master Cylinder Efficacy

Id = "S5.4.1"

Text = "A master cylinder shall have a reservoir compartment for each service brake subsystem serviced by the master cylinder. Loss of fluid from one compartment shall not result in a complete loss of brake fluid from another compartment."

Tool-specific

Representation
Examples

MagicDraw OSLC Adapter: MagicDraw Requirement



This document: http://localhost:8080/oslc4jmagicdraw/services/SUV_Example/requirements/S5.4.1

Adapter Publisher: Georgia Institute of Technology OSLC Tools Project

Adapter Identity: org.eclipse.lyo.adapter.magicdraw

MagicDraw Requirement S5.4.1

Description: A master cylinder shall have a reservoir compartment for each service brake subsystem serviced by the master cylinder. Loss of fluid from one compartment shall not result in a complete loss of brake fluid from another compartment.

Hyperlink: http://en.wikipedia.org/wiki/Master_cylinder

Derived Elements

S5.4.1b

S5.4.1a

Satisfied By

Blocks::BrakeSystem

HTML

OSLC MagicDraw Adapter 0.1 brought to you by Eclipse Lyo

«requirement»

Master Cylinder Efficacy

Id = "S5.4.1"

Text = "A master cylinder shall have a reservoir compartment for each service brake subsystem serviced by the master cylinder. Loss of fluid from one compartment shall not result in a complete loss of brake fluid from another compartment."

Tool-specific

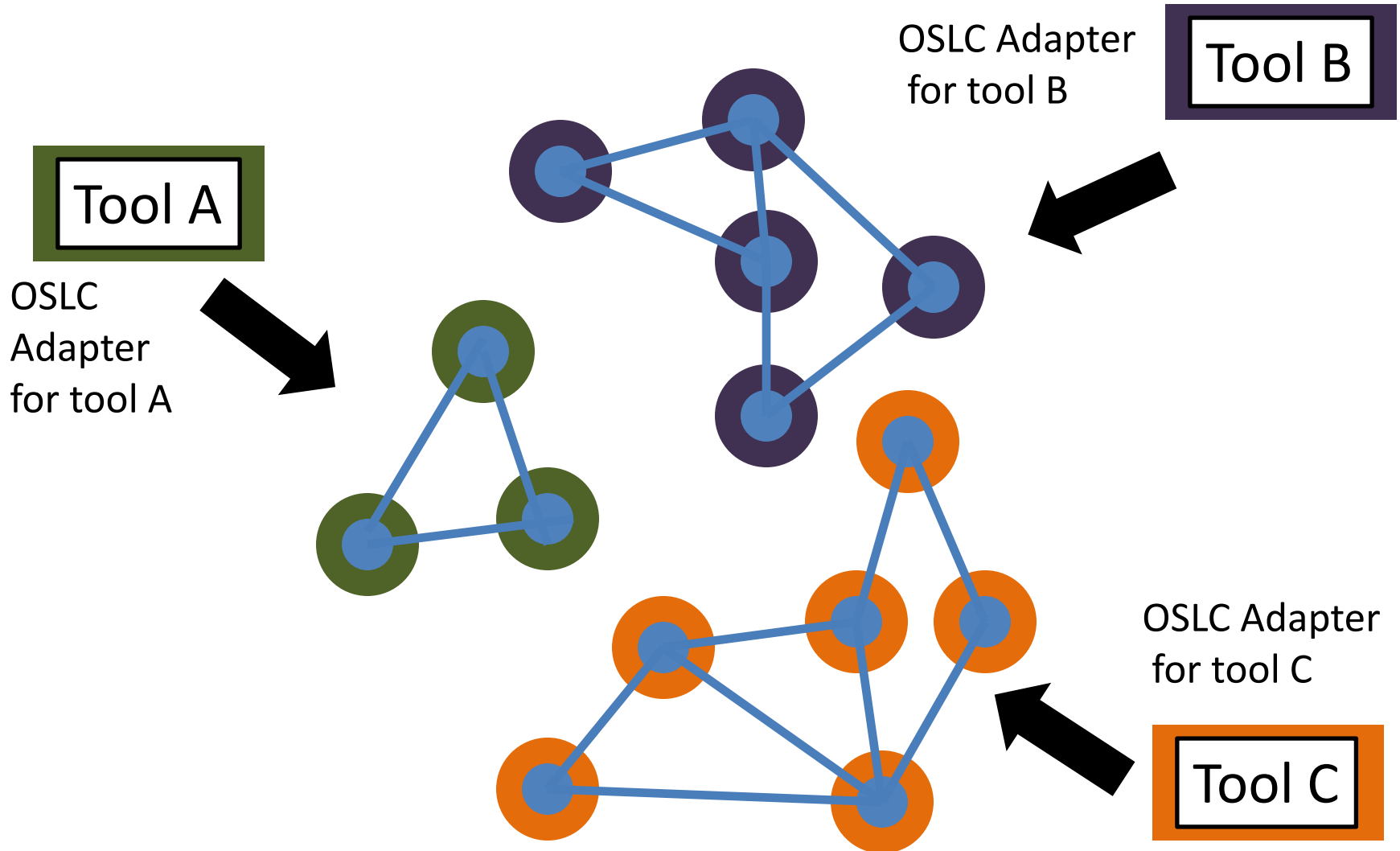
Representation Examples

```
<rdf:Description rdf:nodeID="A1">
  <rdf:type rdf:resource="http://omg.org/sysml/rdf#Requirement"/>
  <sysml_requirement:derived rdf:resource="http://localhost:8080/oslc4jmagicdraw/services/TestProject2/requirements/S5.4.1b"/>
  <oslc_rm:elaboratedBy rdf:resource="http://localhost:8080/oslc4jmagicdraw/services/TestProject2/usecases/Requirements::Deceleration"/>
  <oslc_rm:satisfiedBy rdf:resource="http://localhost:8080/oslc4jmagicdraw/services/TestProject2/blocks/Requirements::BrakeSystem"/>
  <rdf:type rdf:resource="http://open-services.net/ns/rm#Requirement"/>
  <dcterms:description rdf:datatype="http://www.w3.org/1999/02/22-rdf-syntax-ns#XMLLiteral">A master cylinder shall have a reservoir compartment
  <sysml_requirement:hyperlink rdf:datatype="http://www.w3.org/1999/02/22-rdf-syntax-ns#XMLLiteral">http://en.wikipedia.org/wiki/Master_cylinder
  <sysml_requirement:derived rdf:resource="http://localhost:8080/oslc4jmagicdraw/services/TestProject2/requirements/S5.4.1a"/>
  <dcterms:title rdf:datatype="http://www.w3.org/1999/02/22-rdf-syntax-ns#XMLLiteral">Master Cylinder Efficacy</dcterms:title>
  <dcterms:identifier>S5.4.1</dcterms:identifier>
</rdf:Description>
```

RDF

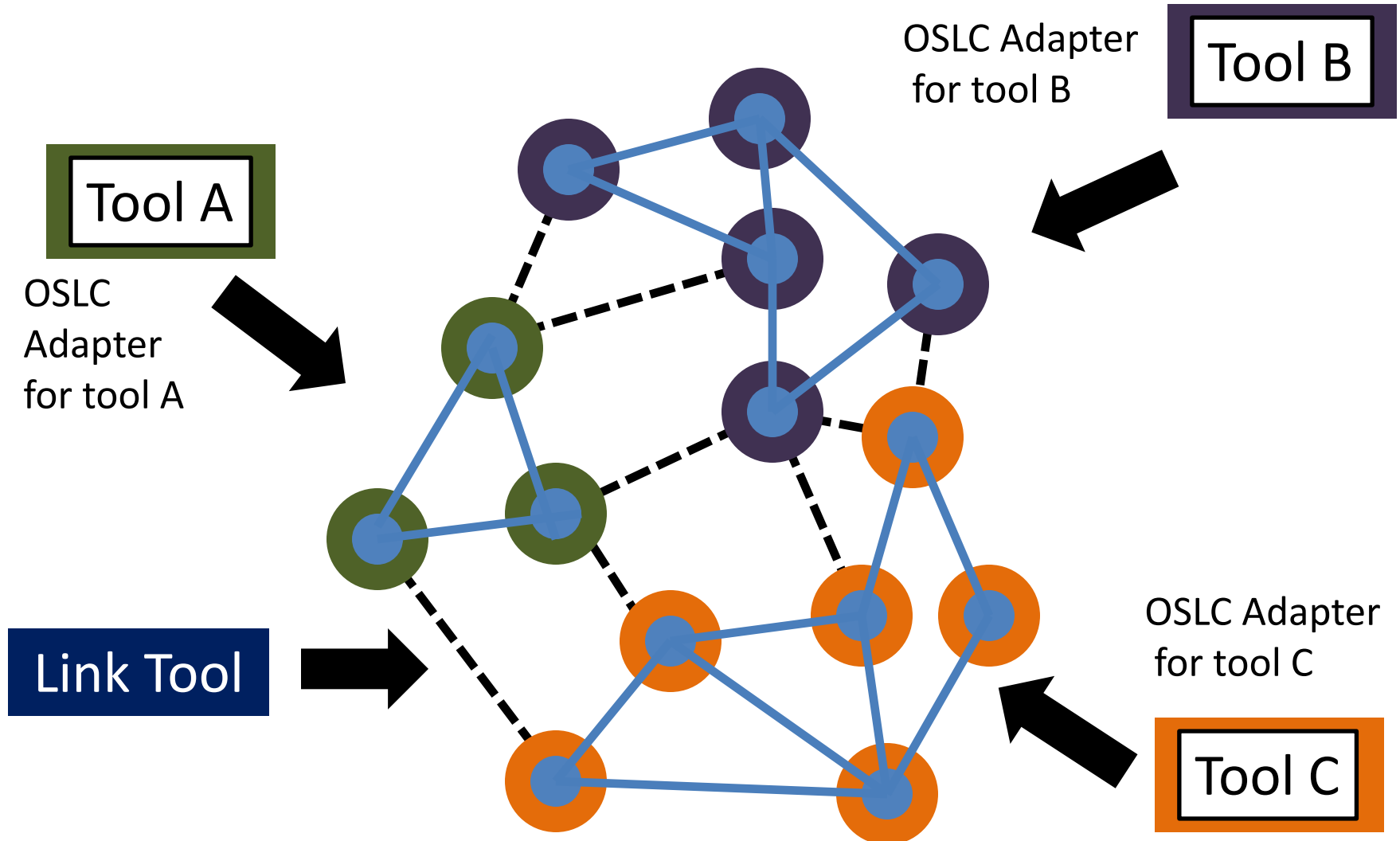
Demo

Linking Resources Across Tools



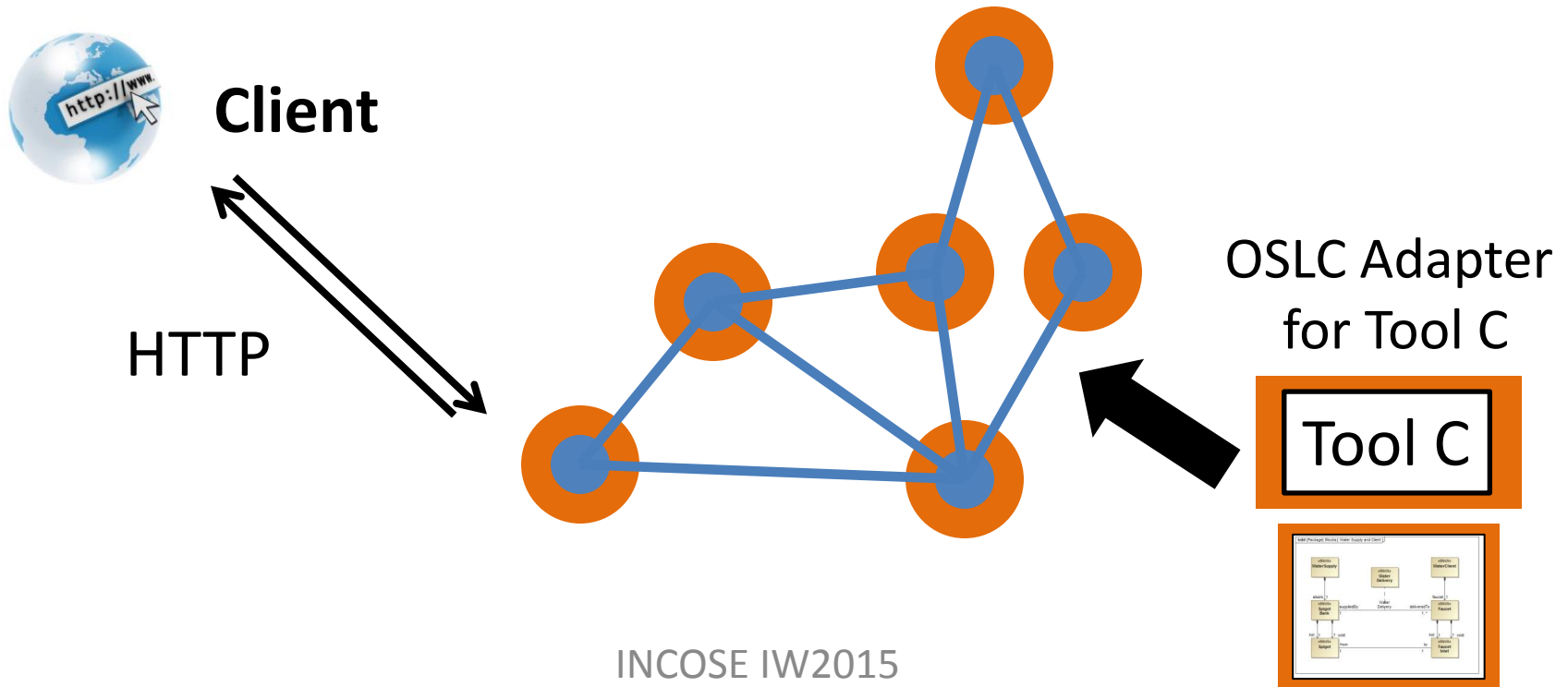
Defining Links

Between OSLC Resources of Different Tools



Adding/Updating/Deleting Resources Through RESTful OSLC Web Services

- Publishing, Querying, Creating, Updating, Deleting Resources
- Aligned with W3C Linked Data Platform



Overview of Operations on OSLC Resources

- **Publishing** OSLC resources
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Overview of Operations on OSLC Resources

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Use Case Scenario of OSLC Tutorial

OSLC Service Provider

Bugzilla: web-based bug tracking tool

OSLC Service Consumer

CRM system: lists bugs/defects associated with an incident reported by a customer

Bugzilla - Bug List

Home | New | Browse | Search | Reports | My Requests | Preferences | Help | Log out user: rochenna@gmail.com

Bugs on this list are sorted by relevance, with the most relevant bugs at the top.

Fri Feb 22 2013 06:02:49 PST
Real failures should never expire.

Content: water Status: UNCONFIRMED, NEW, ASSIGNED, REOPENED

17 bugs found

ID	Product	Comp	Assignee	Status	Resolution	Summary
9541	FoodRepl	Salt	todd@tocarte.com	NEW	---	Salt Water
3266	WorldCon	WeatherC	tara@bluemartini.com	NEW	---	Moon changes water level!
15889	FoodRepl	VoiceInt	tara@bluemartini.com	NEW	---	Voice recognition error
3028	WorldCon	WeatherC	tara@bluemartini.com	NEW	---	How to use the ACME water gun
12522	WorldCon	WeatherC	tara@bluemartini.com	ASSI	---	Sharks with freakin lasers does not work. See test steps.
16048	FoodRepl	SaltSpri	tara@bluemartini.com	NEW	---	Sprinkler gets clogged with water
16129	FoodRepl	Salt	alejandra.lopez@softtek.com	NEW	---	Salt taste like the ocean water.
15893	WorldCon	Economic	tara@bluemartini.com	NEW	---	The water level control overreacts
8725	FoodRepl	Salt	justdave@syndicomm.com	NEW	---	Salt issue
768	FoodRepl	SpiceDis	tara@bluemartini.com	NEW	---	Spice dispenser not dispensing.
633	WorldCon	WeatherC	tara@bluemartini.com	ASSI	---	Some parrots are not safe to eat
1211	WorldCon	WeatherC	tara@bluemartini.com	ASSI	---	Some parrots are not safe to eat. they increase the chance on an El Niño
2228	WorldCon	WeatherC	kris@emmet.com	ASSI	---	Some parrots are not safe to eat. they increase the chance on an El Niño
2265	WorldCon	WeatherC	tara@bluemartini.com	ASSI	---	CAN'T LINK TO DEFECT #4111111111111111
4159	WorldCon	WeatherC	tara@bluemartini.com	NEW	---	It's far to wet
12531	FoodRepl	SpiceDis	tara@bluemartini.com	REOP	---	amount was increased for curry is not there
12631	FoodRepl	Salt II	justdave@syndicomm.com	NEW	---	Salt is not working in Mac OS X 10.7

17 bugs found.

Long Format: [xML] CSV | Feed | Calendar | Change Columns | Change Several Bugs at Once | Send Mail to Bug Assignees | Edit Search | Remember search | as []

Time Summary

Incident #676

Status: []

Customer: Totally Fictional Corporation, Inc.
Created: Feb. 15, 2012
Updated: Feb 21, 2012
Status: OPEN

Description: Lorem ipsum et cum fabulas inductum consequuntur, te eum habeo eleifend. Usu cetero scribentur no, ius ad nominati accusamus accommodare. Dolorem appellantur te mel, nihil latine expetendis usu at, mel ei prima graeco. Harum scribentur est in. Mel cu natum interesset, suas menandri salutatus at est, debet ignota qui an. Epicurei scribentur ei pri. Cu utroque vituperata cum, agam invidunt ei nec, eum eu sonet possit.

Add Link... Select Defect to Link to... Create Defect to Link to...

Related Defects

- Bug #2
- Bug #1
- Bug #8

A user needs to list bugs that correspond to an incident of a customer. The listed bugs of the CRM should correspond to the Bugzilla bugs

CRM System

Incident #676

Status

Customer Totally Fictional Corporation, Inc.
Created Feb. 15, 2012
Updated Feb 21, 2012
Status OPEN

Description: Lorem ipsum et cum fabulas indoctum consequuntur, te eum habeo eleifend. Usu cetero scribentur no, ius ad nominati accusamus accommodare. Dolorem appellantur te mel, nihil latine expetendis usu at, mel ei prima graeco. Harum scribentur est in. Mel cu natum interesset, suas menandri salutatus at est, debet ignota qui an. Epicurei scribentur ei pri. Cu utroque vituperata cum, agam invidunt ei nec, eum eu sonet possit.

Add Link...

Select Defect to Link to...

Create Defect to Link to...

Related Defects

- Bug #2
- Bug #1
- Bug #8

Adding a Bug to the CRM System

Description: Lorem ipsum et cum fabulas indoctum consequuntur, te eum habeo eleifend. Usu cetero scribentur no, ius ad nominati accusamus accommodare. Dolorem appellantur te mel, nihil latine expetendis usu at, mel ei prima gaeco. Harum scribentur est in. Mel cu natum interesset, suas menandri salutatus at est, debet ignota qui an. Epicurei scribentur ei pri. Cu utroque vituperata cum, agam invidunt ei nec, eum eu sonet possit.

Add Link...

Select Defect to Link to...

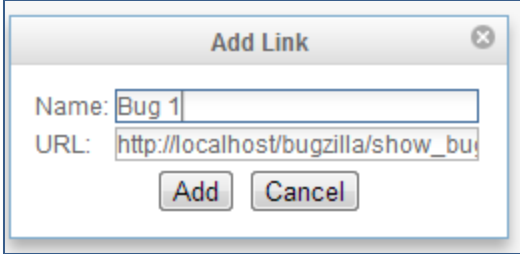
Create Defect to Link to...

Related Defects

- Bug #2
- Bug #1
- Bug #8

A user would like to add a bug to the CRM system by manually indicating its URI. The URI should match the URI of a bug in the Bugzilla repository

Example:



Add Link

Name: Bug 1

URL: http://localhost/bugzilla/show_bu

Add Cancel

Delegated UI for Resource Selection

Description: Lorem ipsum et cum fabulas indoctum consequuntur, te eum habeo eleifend. Usu cetero scribentur no, ius ad nominati accusamus accommodare. Dolorem appellantur te mel, nihil latine expetendis usu at, mel ei prima graeco. Harum scribentur est in. Mel cu natum interesset, suas menandri salutatus at est, debet ignota qui an. Epicurei scribentur ei pri. Cu utroque vituperata cum, agam invidunt ei nec, eum eu sonet possit.

Add Link...

Select Defect to Link to...

Create Defect to Link to...

Related Defects

- Bug #2
- Bug #1
- Bug #8

A user would like to get from bugzilla a delegated UI for searching and selecting an existing Bugzilla bug

Example:

Find a specific bug by entering words that describe it.

581: Salt has floatable impurities when mixed in water
3028: How to use the ACME water gun
3266: Moon changes water level1
9541: Salt Water
15893: The water level control overreacts
16048: Sprinkler gets clogged with water
16129: Salt taste like the ocean water.

OK Cancel

Delegated UI for Resource Creation

Description: Lorem ipsum et cum fabulas indoctum consequuntur, te eum habeo eleifend. Usu cetero scribentur no, ius ad nominati accusamus accommodare. Dolorem appellantur te mel, nihil latine expetendis usu at, mel ei prima graeco. Harum scribentur est in. Mel cu natum interesset, suas menandri salutatus at est, debet ignota qui an. Epicurei scribentur ei pri. Cu utroque vituperata cum, agam invidunt ei nec, eum eu sonet possit.

Add Link...

Select Defect to Link to...

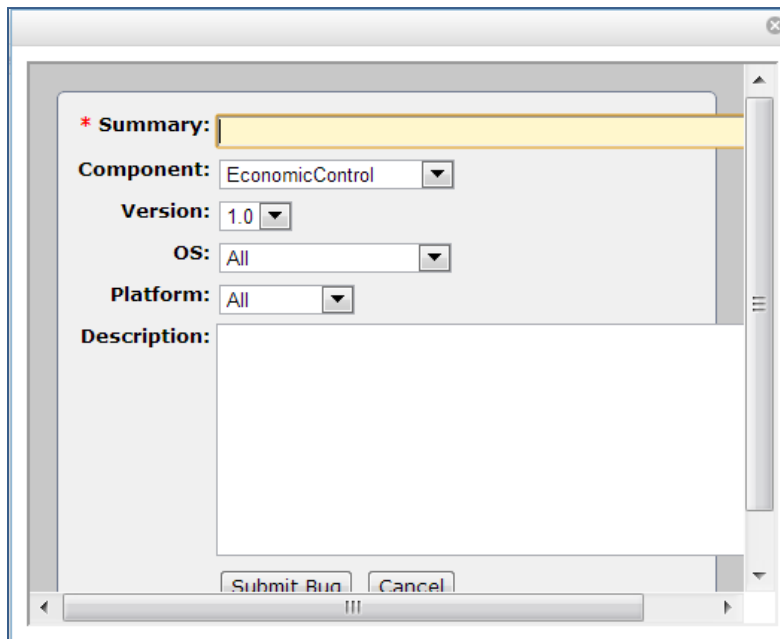
Create Defect to Link to...

Related Defects

- Bug #2
- Bug #1
- Bug #8

A user would like to create a new bug within the Bugzilla repository

Example:



The screenshot shows a dialog box for creating a new bug. It has a title bar with a close button. The main area contains several fields: a text field for the summary (highlighted in yellow), a dropdown menu for the component (set to 'EconomicControl'), a dropdown menu for the version (set to '1.0'), a dropdown menu for the OS (set to 'All'), and a dropdown menu for the platform (set to 'All'). Below these is a large text area for the description. At the bottom of the dialog are two buttons: 'Submit Bug' and 'Cancel'.

UI Preview

Description: Lorem ipsum et cum fabulas indoctum consequuntur, te eum habeo eleifend. Usu cetero scribentur no, ius ad nominati accusamus accommodare. Dolorem appellantur te mel, nihil latine expetendis usu at, mel ei prima gaeco. Harum scribentur est in. Mel cu natum interesset, suas menandri salutatus at est, debet ignota qui an. Epicurei scribentur ei pri. Cu utroque vituperata cum, agam invidunt ei nec, eum eu sonet possit.

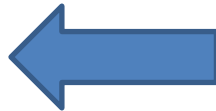
Add Link...

Select Defect to Link to...

Create Defect to Link to...

Related Defects

- [Bug #2](#)
- [Bug #1](#)
- [Bug #8](#)



A user would like to hover over a bug with the mouse and get a small UI preview from Bugzilla

Example:

Related Defects

- [Bug #2](#)
- [Bug #1](#)
- [Bug 3000](#)
- [Bug #8](#)

Status: RESOLVED

Assignee: cyeh@bluemartini.com

Priority: P2

Reported: 16.06.00 20:53

Product: WorldControl

Component: EconomicControl

Version: 1.0

Modified: 09.07.10 09:26

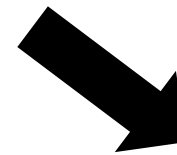
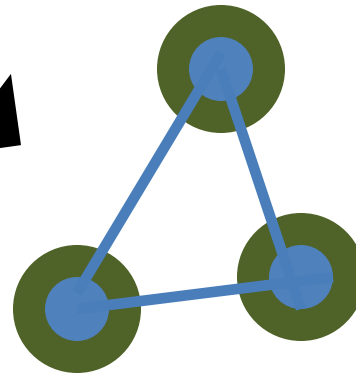
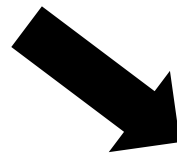
Overview of Operations on OSLC Resources

- **Publishing** OSLC resources
- **Retrieving** OSLC resources
- **Linking** OSLC resources across tools
- **Adding/Updating/Deleting** OSLC Resources
- **Viewing** previews of OSLC resources of other tools
- **Interchanging** OSLC resources between tools
- **Tracking changes** to OSLC resources

Data Interoperability



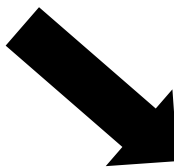
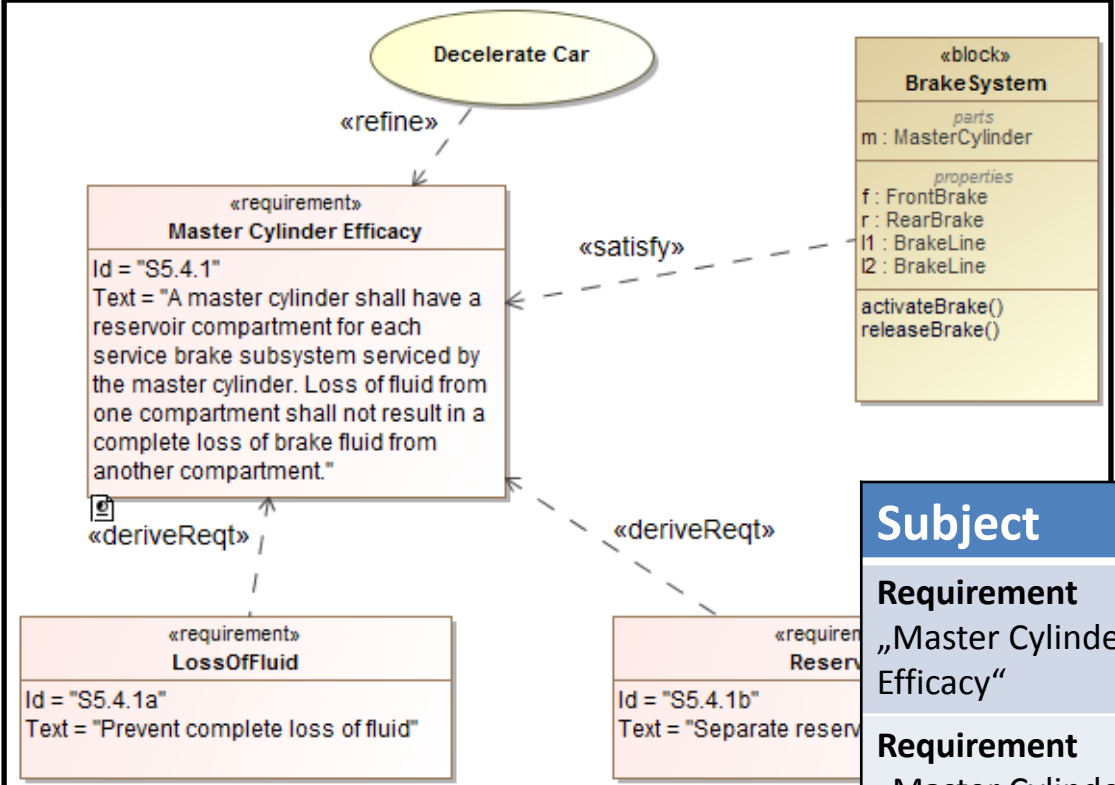
OSLC
Adapter
for tool A



OSLC Adapter
for tool C



RDF Example



Subject	Predicate	Object
Requirement „Master Cylinder Efficacy“	refinedBy	Use Case „Decelerate Car“
Requirement „Master Cylinder Efficacy“	satisfiedBy	Block „Brake System“
Requirement „Master Cylinder Efficacy“	derivedRqt	Requirement „Loss of Fluid“
Requirement „Master Cylinder Efficacy“	derivedRqt	Requirement „Reservoir“

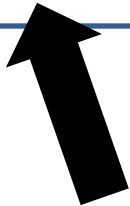
**RDF =
subject-predicate-
object statements
(triples)**

Interoperability Through Standardized Resource Properties and Resource Types

Subject	Predicate	Object
<p>Requirement „Master Cylinder Efficacy“</p> <p>Any HTTP URI</p>	<p>type</p> <p>http://www.w3.org/1999/02/22-rdf-syntax-ns#type</p>	<p>Requirement</p> <p>http://open-services.net/ns/rm#Requirement</p>
<p>Requirement „Master Cylinder Efficacy“</p> <p>Any HTTP URI</p>	<p>description</p> <p>http://purl.org/dc/elements/1.1/description</p>	<p>„A master cylinder shall...“</p>

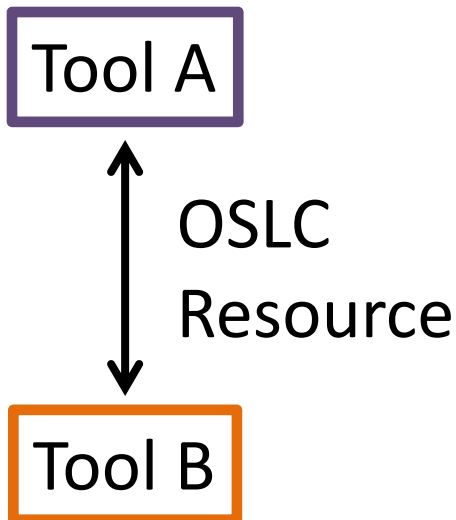
Snapshot of the OSLC Requirements Management Specification

Prefixed Name	Occurs	Description
oslc_rm:elaboratedBy	zero-or-many	The subject is elaborated by the object. For example, a user requirement is elaborated by use case.
oslc_rm:elaborates	zero-or-many	The object is elaborated by the subject.
oslc_rm:specifiedBy	zero-or-many	The subject is specified by the object. For example, a requirement is elaborated by a model element.
oslc_rm:specifies	zero-or-many	The object is specified by the subject.



Standardized OSLC Requirement Properties

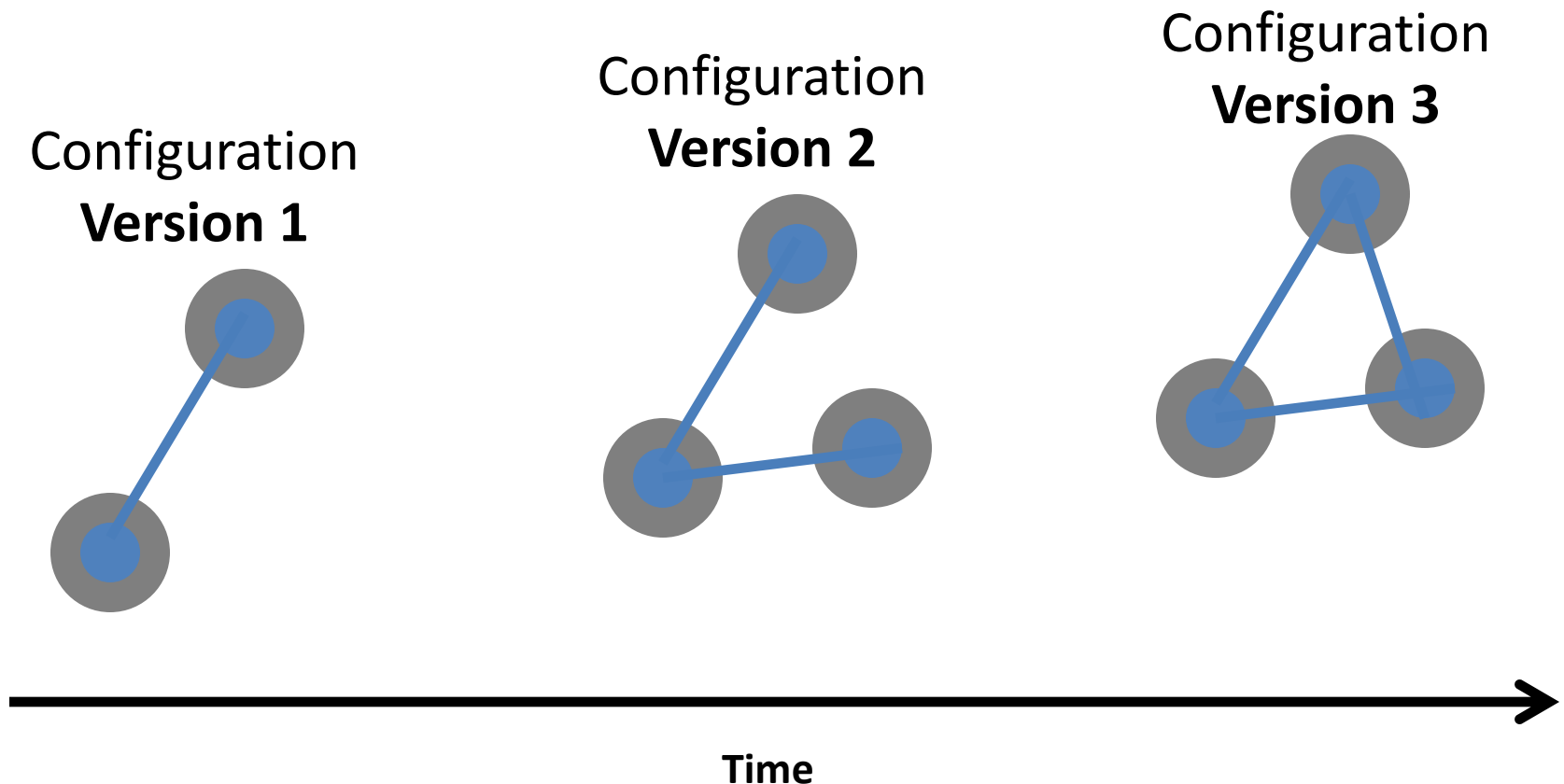
OSLC Specifications for Interopera- bility and Information Discovery



Domain	Status
Core	2.0
Architecture Management	2.0
Asset Management	2.0
Automation	2.0
Change Management	2.0
Performance Monitoring	2.0
Quality Management	2.0
Reconciliation	2.0
Requirements Management	2.0
Reporting	Converge
Estimation and Measurement	Converge
ALM/PLM Interoperability	Draft
Configuration Management	Scope

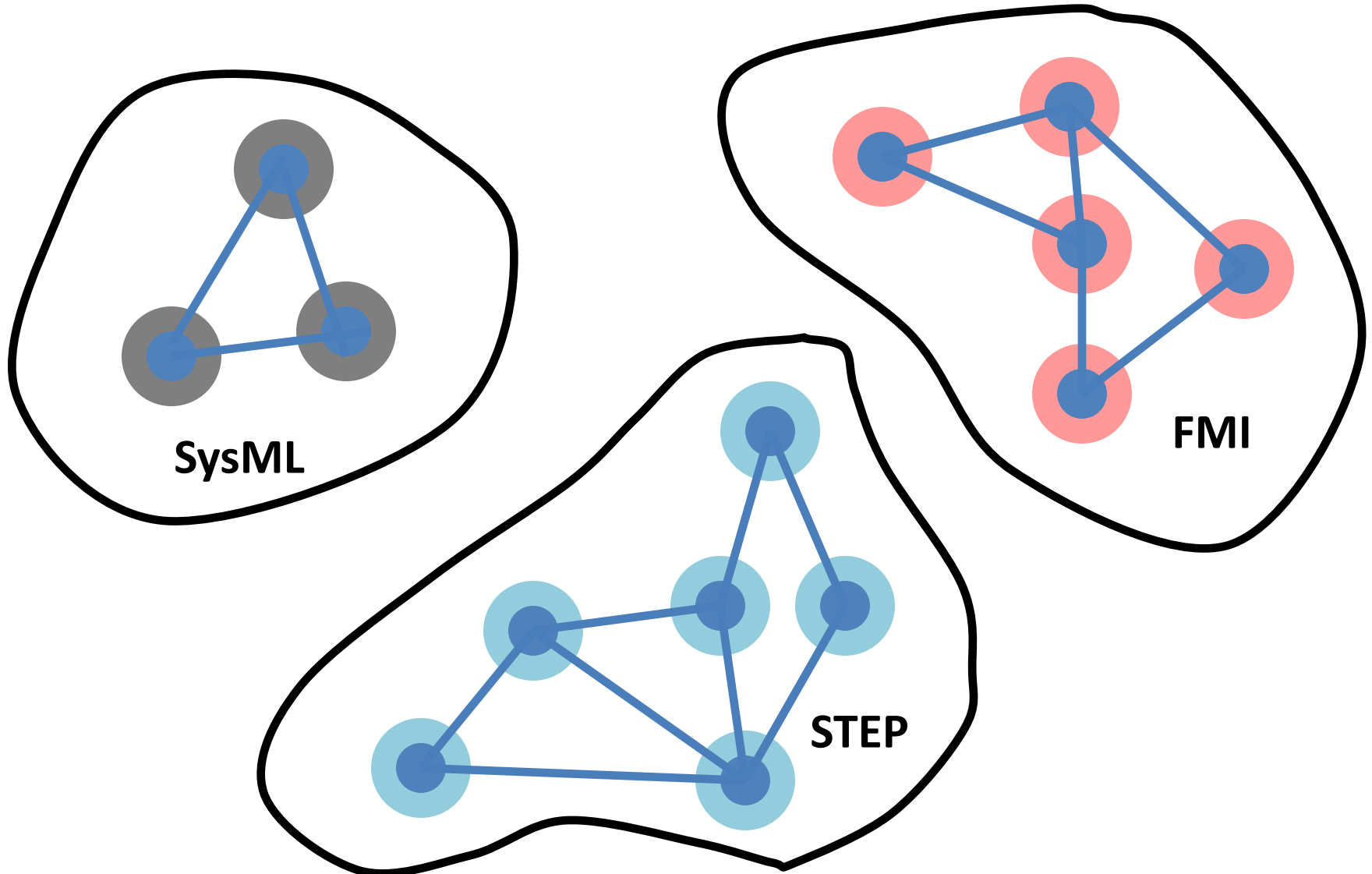
Version Management of OSLC Resources

- **OSLC Configuration Management Working Group**



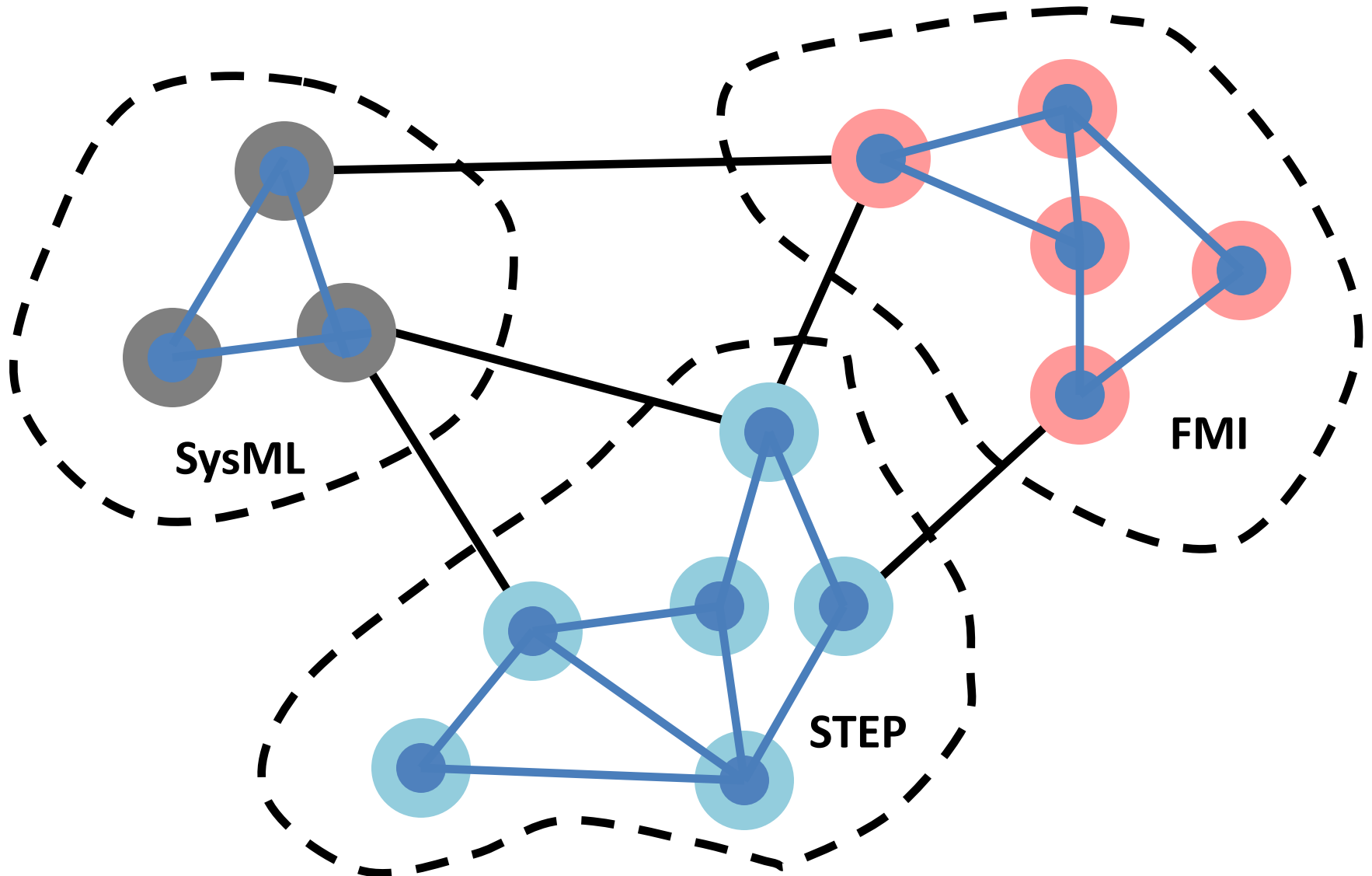
Closed World Standards

non-compatible with Linked Data



Open World Standards

compatible with Linked Data



Advantages of Minimalistic Standards over „Universal“ Standards

	„Closed world“ Standards	„Open world“ Standards
Example	UML/SysML + STEP	OSLC Specifications
Scope	Large	Minimalistic
Size	Large	Minimalistic
Effort until release	High	Small
Time until release	Long	Short
Ease of implementation	Difficult	Easy
Ease of adoption	Difficult	Easy

OMG OSLC4MBSE Working Group

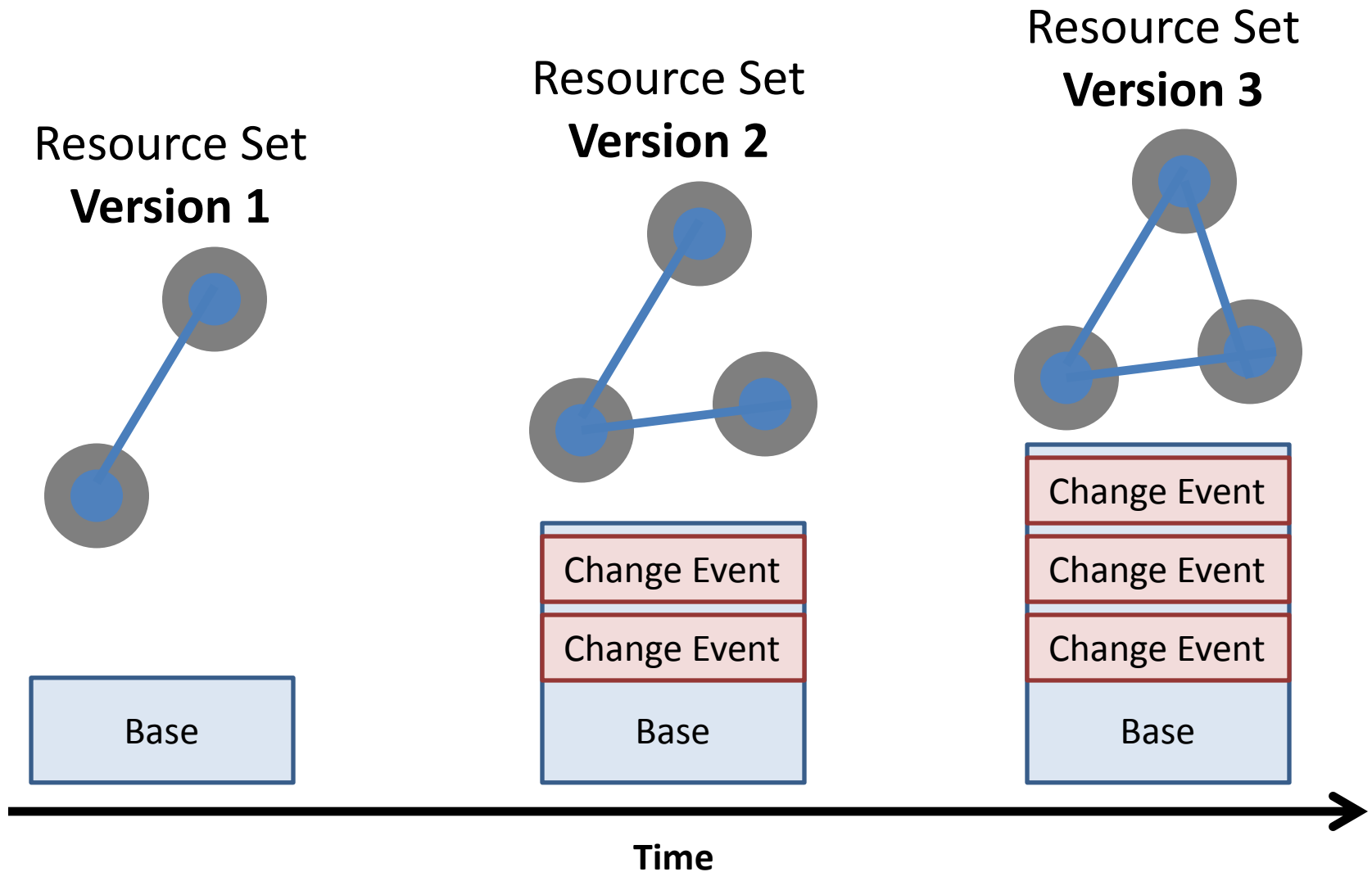
- **Define** OSLC Specification for describing system architectures
- **Collect** use case scenarios from the systems engineering community
- **Share** use case scenarios with OSLC community
- **Get** technical feedback from OSLC community

Parham Vasaiely, Jaguar Land Rover, UK
Axel Reichwein,  Koneksys, USA
Allison Barnard Feeny, National Institute of Standards and Technology, USA
Yves Bernard, Airbus, France
Markus Brandstaetter, PROSTEP, Germany
Roger Burkhart, Deere, USA
Jim Conallen, IBM Rational, USA
Harald Eisenmann, Airbus Defence and Space, Germany
Amit Fisher, IBM, USA
Gray Bachelor, IBM, USA
Sandy Friedenthal, SAF Consulting, USA
Nerijus Jankevicius, NoMagic
Steven Jenkins, JPL NASA, US
Sylvere Krime, Engisis, USA
Mike Loeffler, General Motors, USA
Eldad Palachi, IBM, Israel
Chris Paredis, Georgia Institute of Technology, USA
Ahsan Qamar, Georgia Institute of Technology, USA
Sebastian Herzig, Georgia Institute of Technology, USA
Nicolas Rouquette, JPL NASA, US
Rick Steiner, (former Raytheon), USA
Mark Schulte, Boeing, USA
John Watson, Lockheed Martin, USA
Ron Williamson, Raytheon, USA

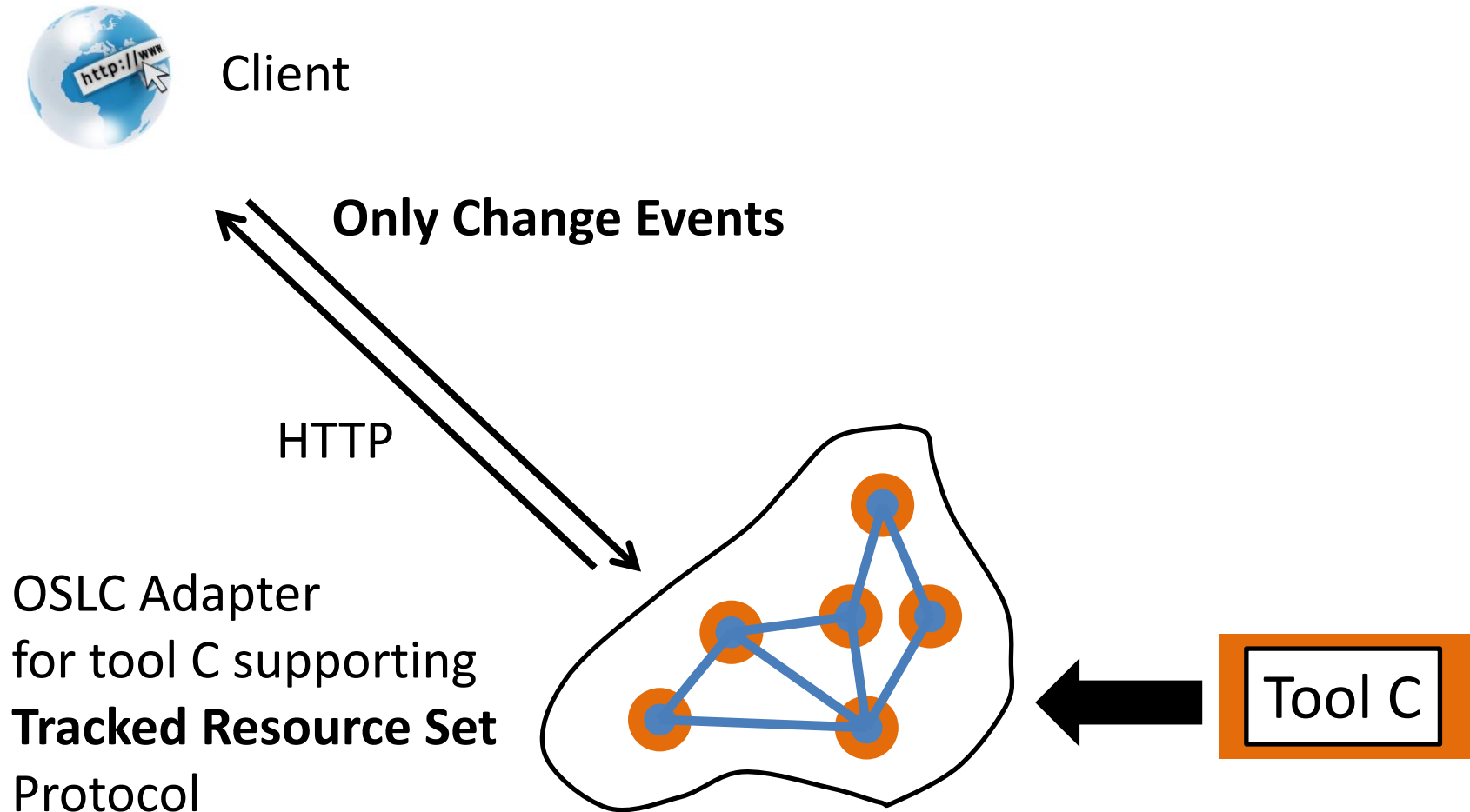
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Tracking Changes to a Base Resource Set

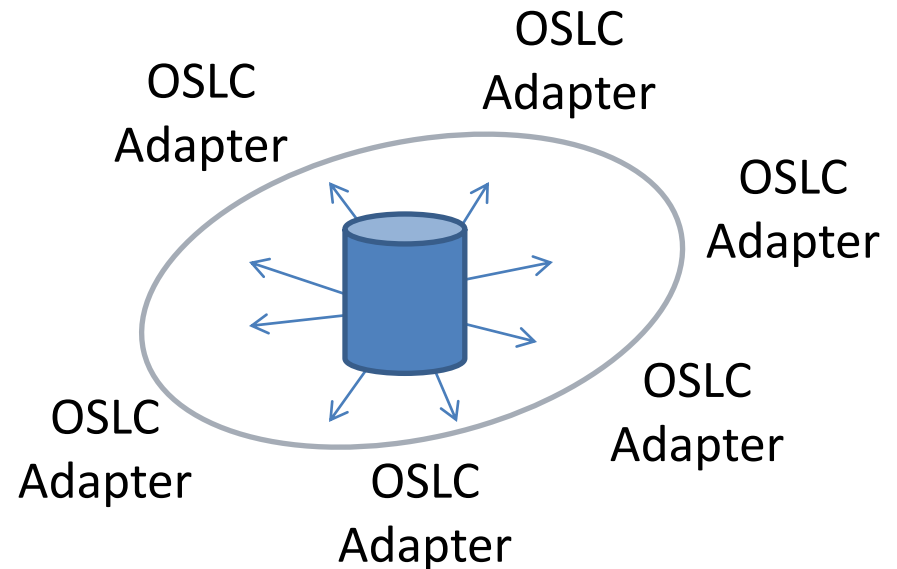


Retrieving ChangeEvents Through OSLC TRS Protocol



OSLC-Based Ecosystem

- **Registry** of OSLC Service Providers
- **Single Point of Entry** to OSLC Resources
- **Editors** to define Relationships between OSLC Resources
- **Views** for seeing Relationships between OSLC Resources
- **Synchronization** of OSLC Resources
- **Advanced workflows** based on Enterprise Service Bus



Implementing OSLC Adapters





Eclipse Lyo
Enabling tool integration with OSLC

Eclipse Lyo is an SDK to help the Eclipse community to adopt **OSLC** (Open Services for Lifecycle Collaboration) specifications and build OSLC-compliant tools.

 **Downloads**  **Source code**

Lyo 2.1 now available!

 **Documentation (Wiki)**  **Open a bug** [\(Open tickets\)](#)

<http://www.eclipse.org/lyo/>

Summary

- **OSLC** = Reusing the Web infrastructure for tool integration
- **Key OSLC advantages**
 - Open technologies
 - Scalability
 - Flexibility