



*Room Goes Here  
16:00 09 December 2015  
OMG OSLC Summit, La Jolla, CA*

OSLC: Satisfying the Requirement to Link  
Conceptually-Different Lifecycle Artifacts for  
Definitive Truth.

With use of the Sodius RLIA OSLC Windchill  
Adapter as a Practical, Commercial Case Study.

Connect ♦ Navigate ♦ Transform

# TL;DR?

Modern enterprises have scaled far beyond the realm of individual artistry wherein all necessary information for the acquisition and implementation of a solution existed or could exist within the mind or notebooks of a single mind or of a single central repository. Dispersion of data related to the lifecycle of an engineering project to accommodate a distributed team of engineers implies a need to synchronize conceptually identical artifacts and to link conceptually different but related ones.

OSLC is a protocol which uses modern REST and LDP techniques to create, query, and visualize linking relationships across distributed repositories of lifecycle artifacts that are conceptually different yet need to be related to synthesize a definitive truth of the current—and of historical—state of a system's specification.

These more theoretical ideas are presented in companion with a brief overview of the Sodus RLIA OSLC Windchill adapter, a practical, commercially available and supported OSLC adapter for the PTC Windchill PLM repository. This OSLC solution enables PLM users to relate their Change Request artifacts to the Work Items (e.g. Change Requests, Defects, Tasks, Stories, etc) of an ALM repository—and vice versa.

The presenter is a Business Enterprise Architect at Sodus, the ALM Scrum Master, and one of the lead software engineers for the Sodus RLIA Windchill adapter.

# Epistemology of Truth

Data < Information < Belief < Truth

Analysis Filters To:

Synthesis Forms:

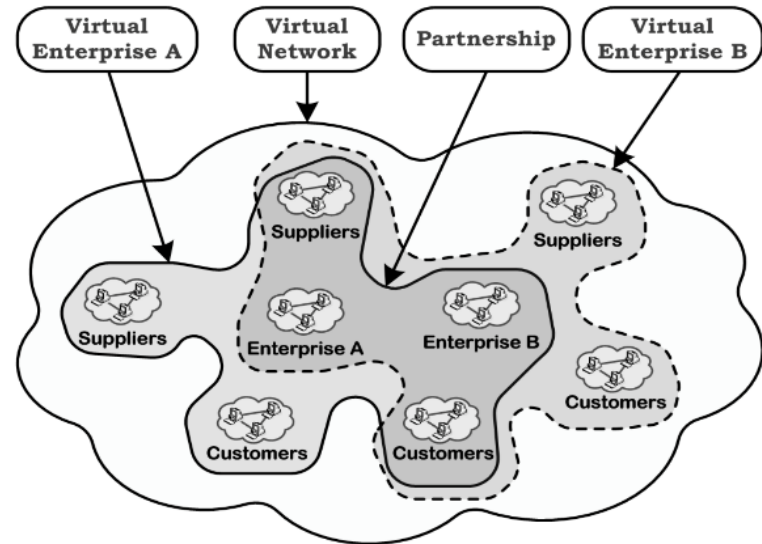
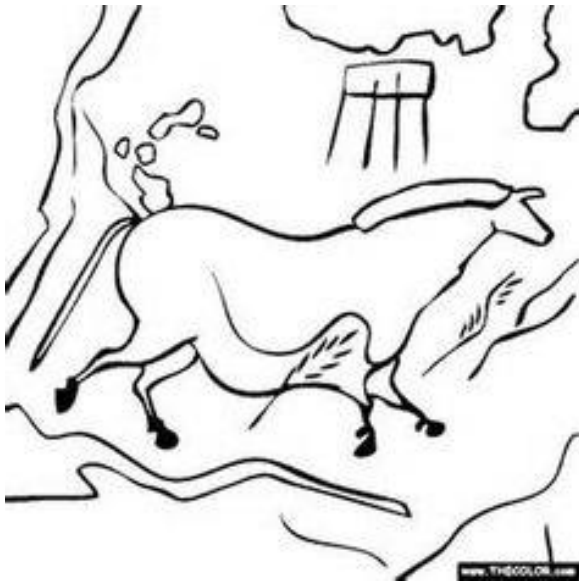
Argument Justifies:

# Evolution of Engineering Scale

Individualized  
Centralized  
Homogenized



Collaborative  
Distributed  
Heterogeneous



# Implication

- Definitive Truth must be formed from  
the Synchronization of identical Concepts  
and from  
the Linking of different yet related Concepts  
in Distributed repositories

# Open Services for Lifecycle Collaboration

- REST
  - LDP
  - RDF Resource Definitions
  - Preview, Creation, and Selection Dialogs
- 
- Basically, an agreement on concepts, their properties, and how to converse about these

# OSLC

Relate Architectural Elements, Change Requests, Quality Assurance Elements, and Requirements with each other in Distributed repositories even those from Different vendors, leaving the linked elements in their respective repositories.

Minimize the Waste of:

Workers in Motion

Information Transformation and Synch

# Practical Use (Hypothetical)

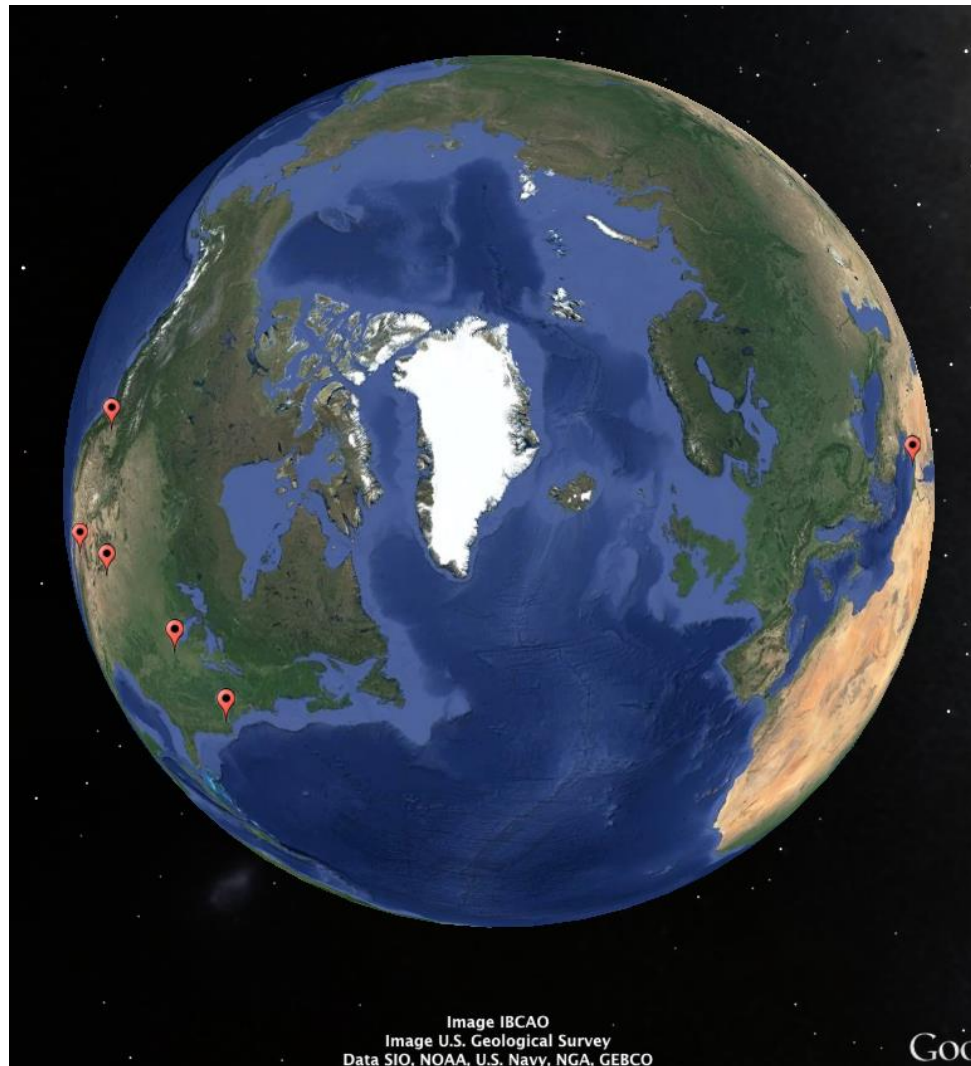
- Organization: Acme.com
- Business Mission: Capitalize on the need for Ubiquitous Wireless Internet access
- Products: Small TRAN Base Stations
- Develops: Product Enclosures, Basestation Hardware, RF Front Ends, SDR Software, User Interfaces, and Mobile Apps
- More...



# Practical Use (Hypothetical)

- Organization: Acme.com
- Teams:
  - Program Management: Chantilly, VA (30)
  - Physical Design and HW Eng: Goodyear, AZ (50)
  - RF Engineering: Haifa, Israel (10)
  - SDR Software Engineering: Naperville, IL (25)
  - User Interface Software Eng: Seattle, WA (25)
  - Marketing: Colorado Springs, CO (6)
- More...

# Visualize Team Distribution



# Distribution within Campus



# Practical Use (Hypothetical)

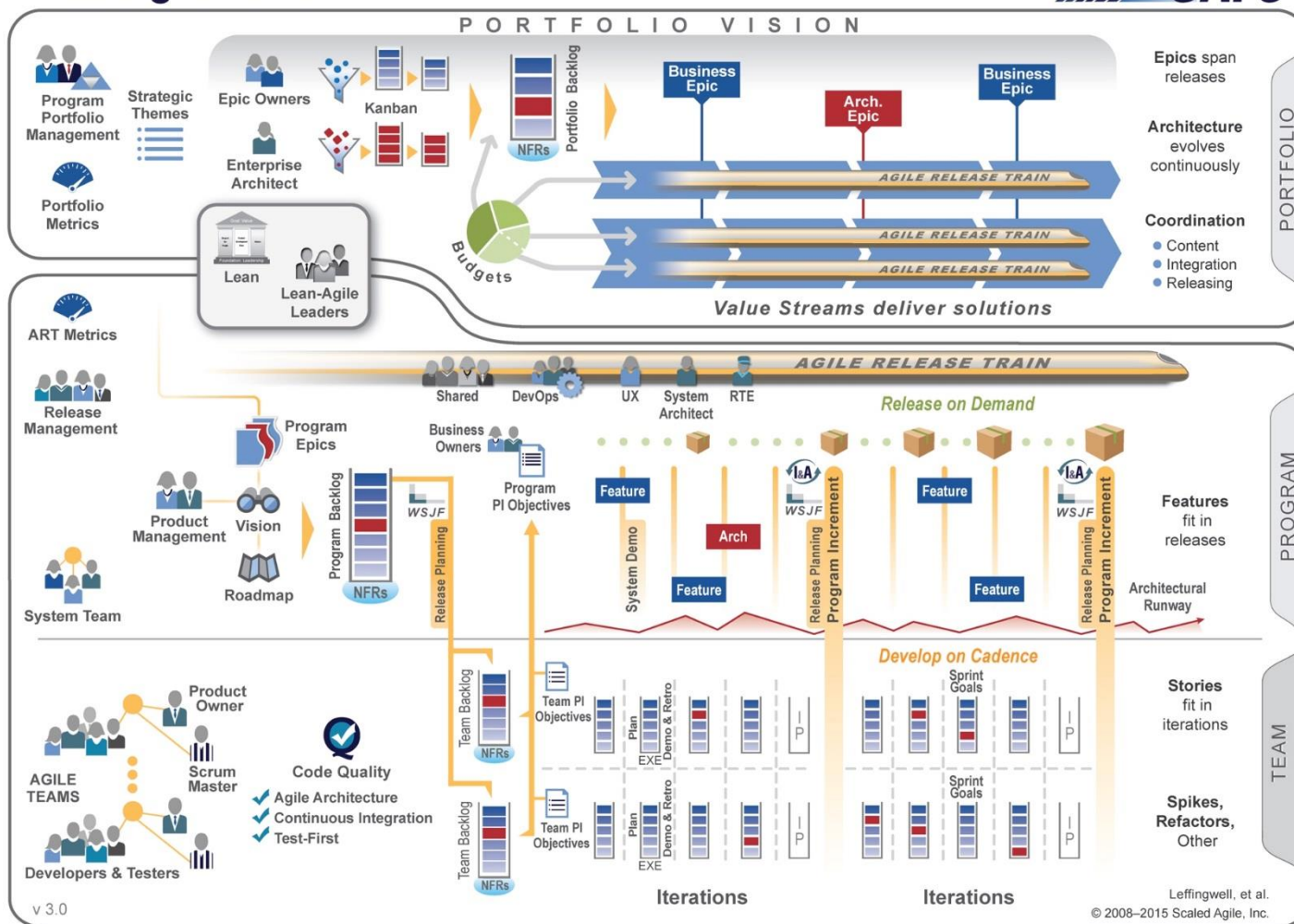
- Organization: Acme.com
- Lifecycle Tools:
  - Deltek: Contract Management
  - Windchill PLM: CAD & BOM
  - Jazz CLM RM: Requirements
  - Jazz CLM CCM: Agile Workflow
  - Internal Git: Document and Code CM
  - Matlab and Excel: RF Analysis
  - Outlook and Excel: Email Engineering
- More...

# Practical Use (Hypothetical)

- Organization: Acme.com
- IT Network:
  - Deltek on HQ in Virginia
  - PLM Servers in Arizona
  - Git CM Servers in Illinois
  - ALM Servers in Washington
- More...

# You Get the Big Picture™

## Scaled Agile Framework®



# Business Need

- When Physical Components are to change or were changed,  
    which Software Components must also change or were also changed  
so that the combined Cyber-Physical Subsystem realized by that fusion of Hardware and Software  
    changes or changed to exhibit the sought capabilities?

# Business Solution

- OSLC Link PLM Change Requests with ALM Work Items
- *(Arguably, there are other solutions but we are here to discuss OSLC and not to prove the optimality of any proposed panacea.)*



## And Now a Word from my Sponsor

- Sodius OSLC RLIA Windchill Adapter™
- Offers an OSLC CM Provider of Windchill Change Requests and Consumer of OSLC Change Management resources
  - For PTC Windchill which currently lacks OSLC capabilities
- Offers an OSLC Tracked Resource Set service to visualization, reporting, and analysis services such as Jazz LQE, RELM, and JRS
- Commercially available and supported from IBM with integration of IBM Rational Token Licensing

# Show and Tell

- Welcome Page

The screenshot displays the 'Welcome to the Sodius Rational Lifecycle Integration Adapter' page. At the top, a header bar contains the Sodius logo and the title. Below the header, a paragraph describes the RLIA's purpose: enabling users of PTC's Product Lifecycle Management Windchill® ecosystem to share information with IBM's Application Lifecycle Management, Rational Team Concert® ecosystem. It mentions that RLIA uses OASIS OSLC standards, protocols, and user interface elements over modern Representational State Transfer (REST) web services to provide this sharing of information, which is linked between systems, not replicated, optimizing storage and consistency.

Two instructions follow: 'To learn how to install and use RLIA, click the Help icon in the upper right.' and 'To configure the RLIA for use, click the Configurator icon in the upper right now.'

A text input field labeled 'OSLC Root Services' contains the URL 'https://rlia-rlia-win.atsodius.com:8443/oslc-windchill/rootservices' and a copy icon.

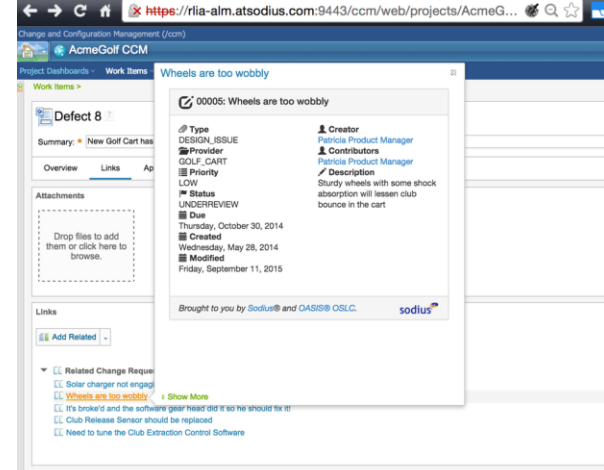
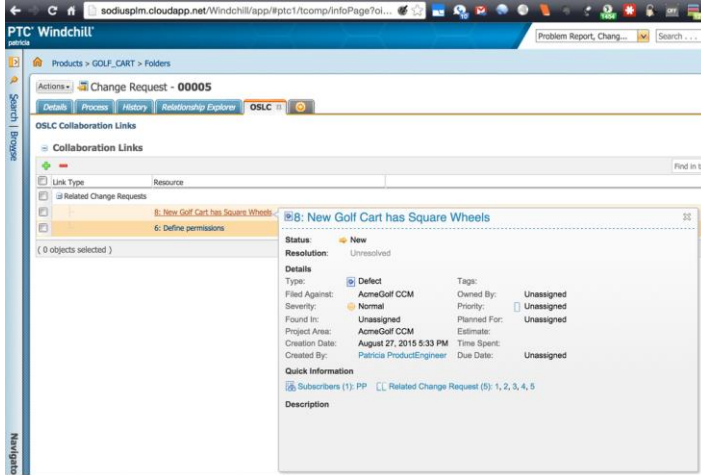
The 'Team Credits' section lists eight team members with their roles in blue buttons: Thomas Capelle (Business Development), Yann Lebeaupin (Chief Technologist), Sebastien Boucard (Lead Architect), Francois-Regis Jaunatre (OAuth Magician), Adrian Smyth (Quality Assurance), Arnaud Manoukian (Software Developer), Romuald Tisserand (IT Wizard), and Lonnie VanZandt (Scrum Master).

The 'Tech Credits' section lists ten technologies with their roles in blue buttons: OASIS OSLC (Specifications for OSLC CM REST Protocols), Eclipse Lyo (OSLC4J Libraries), Apache Tomcat (Tomcat Web Server Manager), Apache Jena (Graph Model Management), Apache TDB (Memory and File Jena-integrated Triplestore), SU4J Sparql Servlet (SPARQL Interface to TDB), IBM WebSphere Application Server (IBM Web Server Manager), AngularJS (Client-side Browser User Interfaces), and Restangular (Client-side REST Broker).

The 'Licenses' section lists 'notices.html' with a 'Third-party Notices' button.

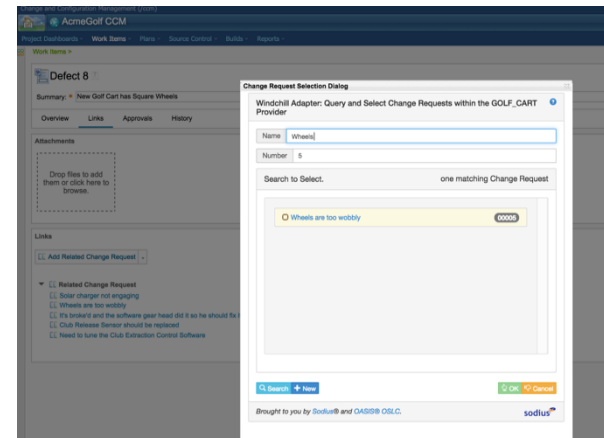
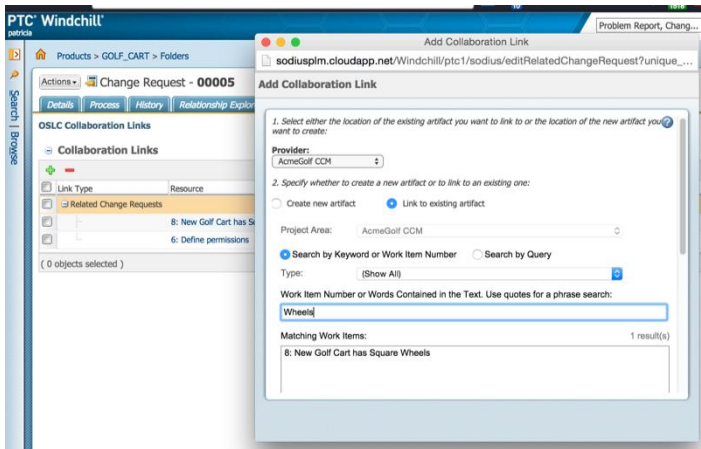
# Show and Tell

- OSLC Preview Dialogs
  - ALM content within PLM context
  - PLM content within ALM context



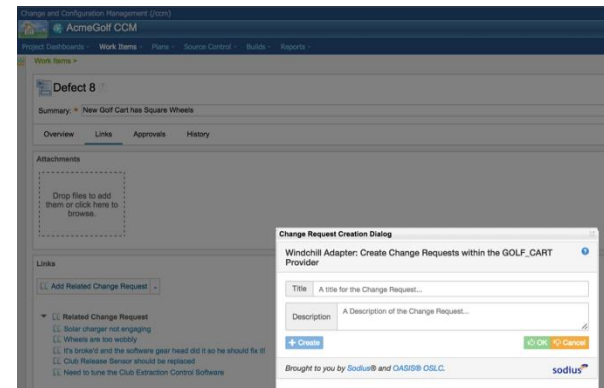
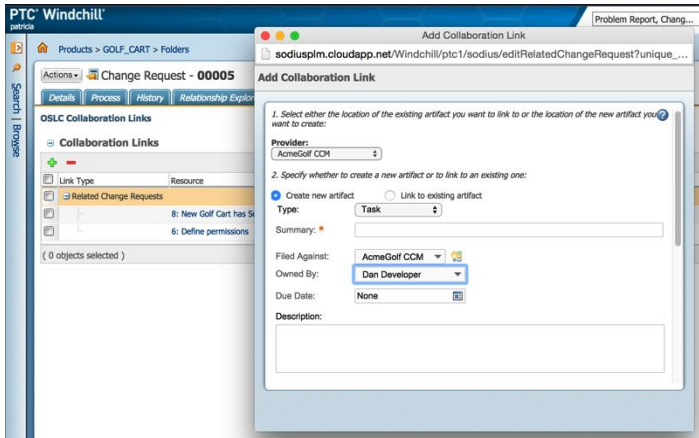
# Show and Tell

- OSLC Selection Dialogs
  - Link ALM content within PLM context
  - Link PLM content within ALM context



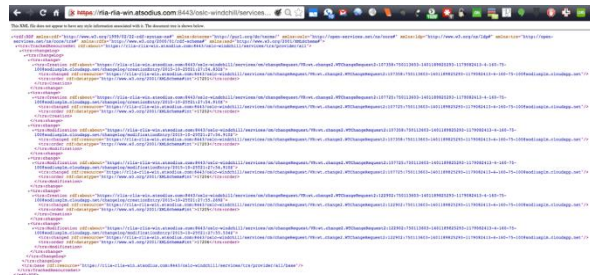
# Show and Tell

- OSLC Creation Dialogs
  - Create and Link ALM content within PLM context
  - Create and Link PLM content within ALM context



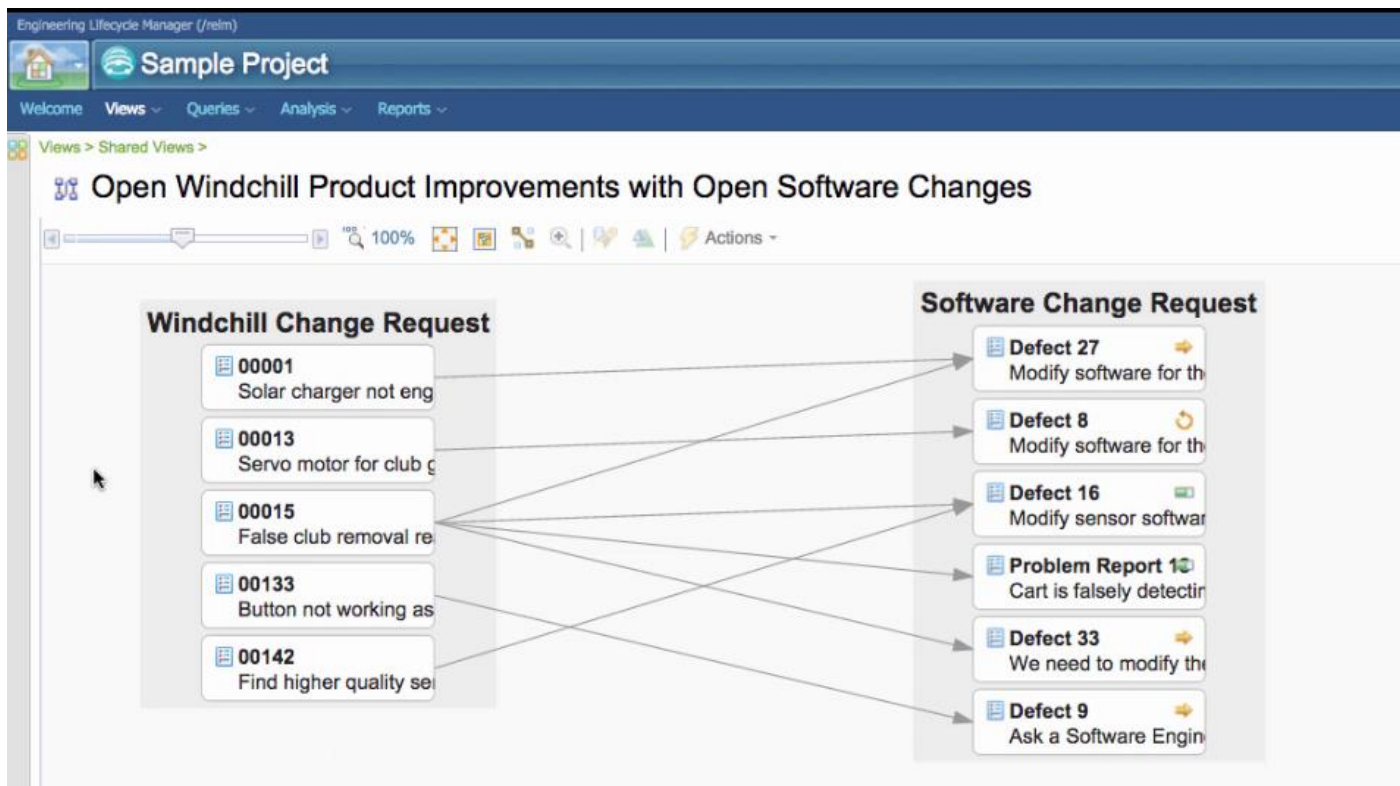
# Show and Tell

- OSLC Tracked Resource Set Service
  - Maintain changes in Resources' states
  - Publish via REST LDP a TRS Resource
  - Makes PLM Content and links to ALM content available to
    - RELM for visualization
    - Jazz Reporting for textual reports



# Show and Tell

- Rational Engineering Lifecycle Manager (RELM)
  - Windchill Change Requests are traced to software defects



# Show and Tell

- Rational Engineering Lifecycle Manager (RELM)
  - Details about the Windchill ECR can be viewed in RELM

The screenshot displays the Rational Engineering Lifecycle Manager (RELM) interface. On the left, a panel titled "Windchill Change Request" lists several ECRs. The ECR with ID 00015, titled "False club removal reading", is selected. On the right, a panel titled "Software Change Request" lists defects, including Defect 27, Defect 8, and Defect 16. A central pop-up window provides detailed information for the selected ECR 00015.

**Windchill Change Request**

- 00001 Solar charger not eng
- 00013 Servo motor for club g
- 00015 False club removal re**
- 00133 Button not working as
- 00142 Find higher quality ser

**Software Change Request**

- Defect 27 Modify software for th
- Defect 8 Modify software for th
- Defect 16

**00015: False club removal reading**

**Title:** 00015  
**Summary:** False club removal reading  
[Hide Detail](#)  
[False club removal reading](#)

Property	Value
Type	PRODUCT_IMPROVEMENT
Provider	GOLF_CART
Priority	LOW
Status	UNDERREVIEW
Due	Unavailable Due Date
Created	Sunday, June 1, 2014
Modified	Wednesday, February 4, 2015
Creator	Patricia Product Manager
Contributors	Patricia Product Manager
Description	When pulling the cart down the gravel access path near hole 8, the cart occasionally registers different clubs as being removed even though they are still in place. Consider modifying the sensor or modifying the software to require the sensors to be open for some period of time before assuming the club was removed. I think there's a good chance this could be fixed in the software.

Brought to you by **Sodius®** and **OASIS® OSLC**. **sodius**



# Show and Tell

- Jazz Reporting Service
  - Windchill Change Requests are traced to software defects

In Progress

PRODUCT\_IMPROVEMENT with Related Software Changes

Duplicate

Edit

20

Items Per Page

Previous

1 - 8 of 8 items

Next

Export

Change Request Short Name	Change Request	Change Request Status	Software Defect Id	Software Defect	Software Defect Status	Software Defect Type
00001	Solar charger not engaging	UNDERREVIEW	27	Modify software for the ECU	New	Defect
00013	Servo motor for club grabber misses	UNDERREVIEW	8	Modify software for the Software Control Software	Reopened	Defect
00015	False club removal reading	UNDERREVIEW	27	Modify software for the ECU	New	Defect
			16	Modify sensor software so that bumpy clubs don't trigger extractions	In Progress	Defect
			33	We need to modify the software	New	Defect
00016	False battery power reading	UNDERREVIEW	19	Modify the power level calculation to account for battery temperature	Verified	Defect
00133	Button not working as expected	UNDERREVIEW	9	Ask a Software Engineer to modify their software module	New	Defect
00142	Find higher quality sensor for club extractions	UNDERREVIEW	16	Modify sensor software so that bumpy clubs don't trigger extractions	In Progress	Defect

Previous

1 - 8 of 8 items

Next

# Show and Tell

- Jazz Dashboards
  - Views and Reports can be added to dashboards

The screenshot shows the 'Acme Golf Lifecycle (Change Management)' dashboard. The top navigation bar includes 'Project Dashboards', 'Work Items', 'Plans', 'Source Control', 'Builds', and 'Reports'. The main content area is divided into several sections:

- In Progress PRODUCT\_IMPROVEMENT with Related Problem Re...**: A table showing change requests and problem reports. The table has columns for Change Request, Change Request Status, Problem Report, Problem Report Status, and Problem Report Type. The first row shows a change request '00015 False club removal reading' with status 'UNDERREVIEW' and a problem report '18 Cart is falsely detecting golf clubs removed when pulling cart over rough terrain' with status 'In Progress'.
- In Progress PRODUCT\_IMPROVEMENT with Related Software ...**: A table showing change requests and software defects. The table has columns for Change Request, Change Request Status, Software Defect, Software Defect Status, and Software Defect Type. The first row shows a change request '00001 Solar charger not engaging' with status 'UNDERREVIEW' and a software defect '27 Modify software for the ECU' with status 'New'.
- Work Item Queries**: A list of queries showing the status of work items. The list includes 'All open (24)', 'Blocked Work Items (0)', 'Closed created by me (2)', 'Closed subscribed by me (2)', 'My current work (3)', 'New unassigned (0)', 'Open Adoptions (0)', 'Open Epics (0)', 'Open Impediments (0)', 'Open Stories (0)', 'Open Track Build Items (0)', 'Open assigned to me (3)', 'Open assigned to me (current sprint) (0)', 'Open created by me (11)', and 'Open subscribed by me (11)'.
- Engineering Lifecycle Manager View**: A diagram showing the relationship between Functional Requirements, Product Change Requests, Software Change Requests, and Mechanical Change Requests. The diagram includes a flow from Functional Requirements to Product Change Requests, then to Software Change Requests, and finally to Mechanical Change Requests.

The bottom of the dashboard shows the URL: <https://sodiuealm.cloudapp.net:9443/jts/dashboards/2#>.

# Learn More

- Marketing for the Sodus RLIA Windchill OSLC Adapter
  - <http://sodius.com/products-overview/oslc-adapter-for-windchill>
  - <https://jazz.net/downloads/rational-adapters-windchill/releases/1.0.1>
  - <https://www.youtube.com/watch?v=dMopWnE2kso>