

WHAT'S NEW IN INTEGRITY MODELER 9.2

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Windchill Systems & Software Engineering

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ptc



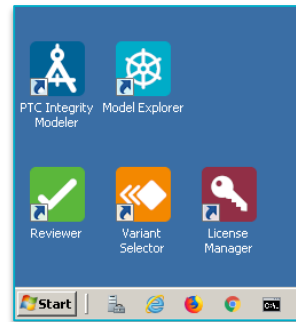
AGENDA

- Contemporary user interface
- Diagramming productivity
- OSLC integration with Windchill
- OSLC integration with Integrity Lifecycle Manager
- Static model analysis
- Installation and deployment

CONTEMPORARY USER INTERFACE

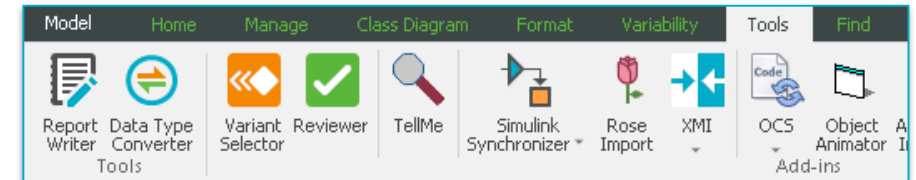
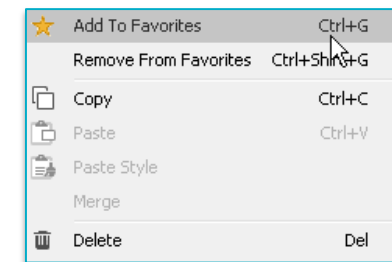
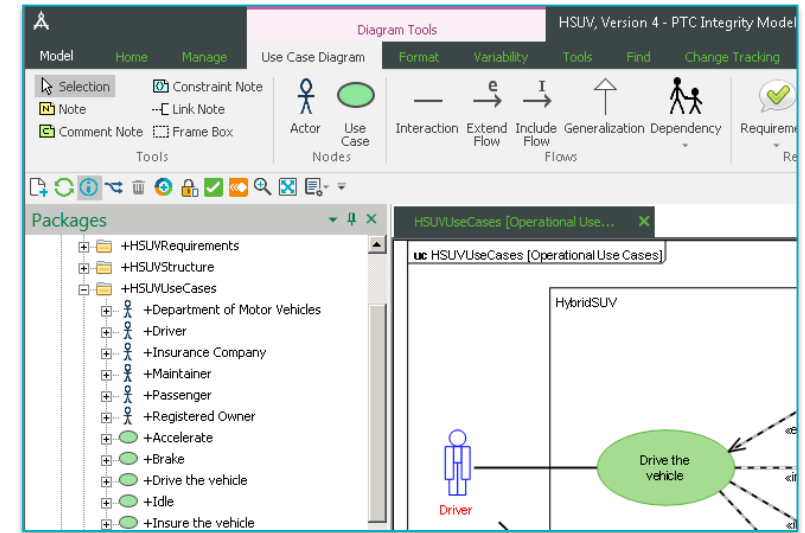
- Integrity Modeler 9.2 provides a contemporary PTC Desktop user experience

- Microsoft Office style ribbon toolbars
- Modern, large icons
- Task-oriented tabs
- User configurable toolbar
- Icons on context menus
- Welcome page



- Value

- Easier navigation to toolbars and functions
 - Increasing user productivity
- More appealing design environment
 - Increasing user satisfaction
- Easier to learn and get started
 - Improving adoption for new users



CONTEMPORARY USER INTERFACE

- Microsoft Office style ribbon toolbars

Contents of 'HSUUseCases [Operational Use Cases]'

Name	Type	Visibility	Changed By	Changed On
HSUUseCases [Operational Use Cases]	Use Case Diagram	Public	PTC	24/10/2006 12:09:32

Properties of 'HSUUseCases [Operational Use Cases]'

Full name: HSUModel:HSUUseCases.HSUUseCases

Page reference: UC

Type: Use Case Diagram

Last changed on/by: 24/10/2006 12:09:32 PTC

Contents of 'HSUV'

Name	Type	Visibility	Changed By	Changed On
Annex C	Text Diagram	Public	PTC	21/10/2013 19:56:58
BindingConnector...	Stereotype	Public	PTC	16/09/2019 08:46:34
HSUModel	Package	Public	PTC	01/09/2009 16:33:58
MBRETraceability...	Stereotype	Public	PTC	16/09/2019 08:46:30
ModelingDomain	Package	Public	PTC	04/05/2007 16:07:36
Profiles	Package	Public	PTC	21/10/2013 19:26:35
ReadMe	Text Diagram	Public	PTC	21/10/2013 21:19:52

Properties of 'HSUV'

Reference: \\SQL\POLLERTON1L2@MODELER\Examples_5\HSUV.0

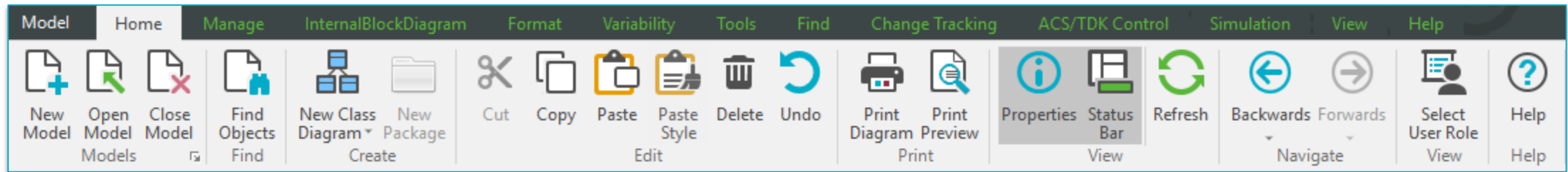
Type: Model Version: 0

Project type: PTC Integrity Modeler v9.2

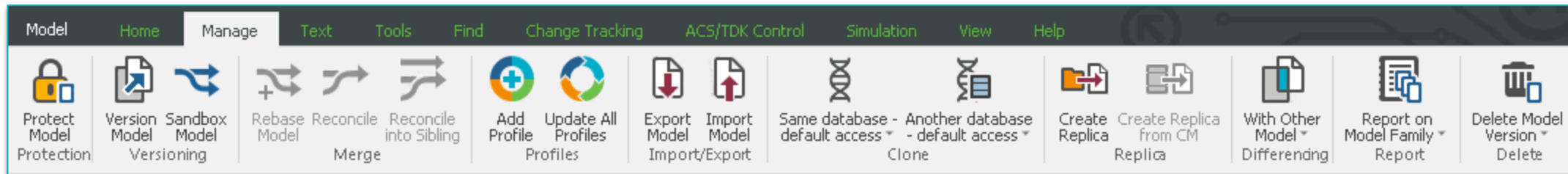
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CONTEMPORARY USER INTERFACE

- Home tab
 - High-frequency model editing functions

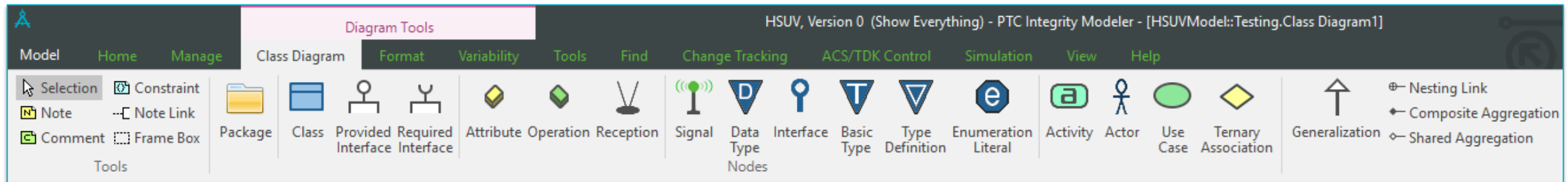
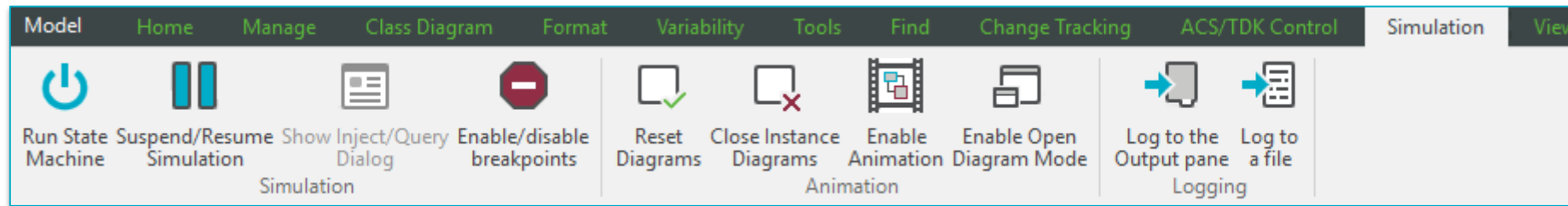
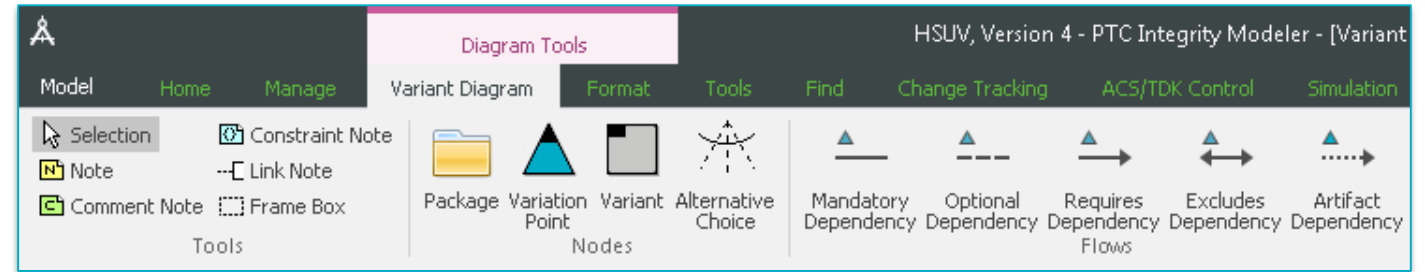


- Manage tab
 - Easy access to all model management functions



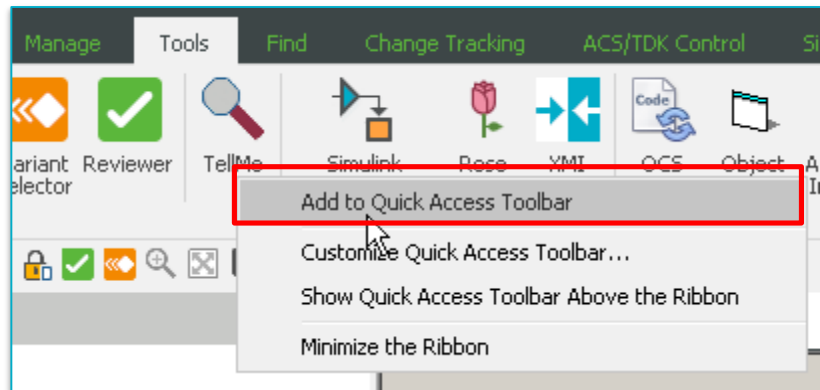
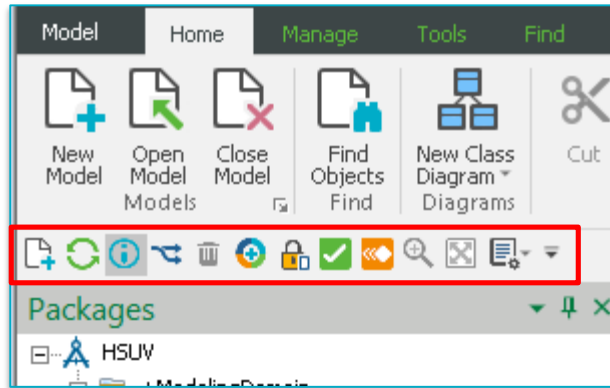
CONTEMPORARY USER INTERFACE

- Task and diagram specific toolbars ensure a focused user experience

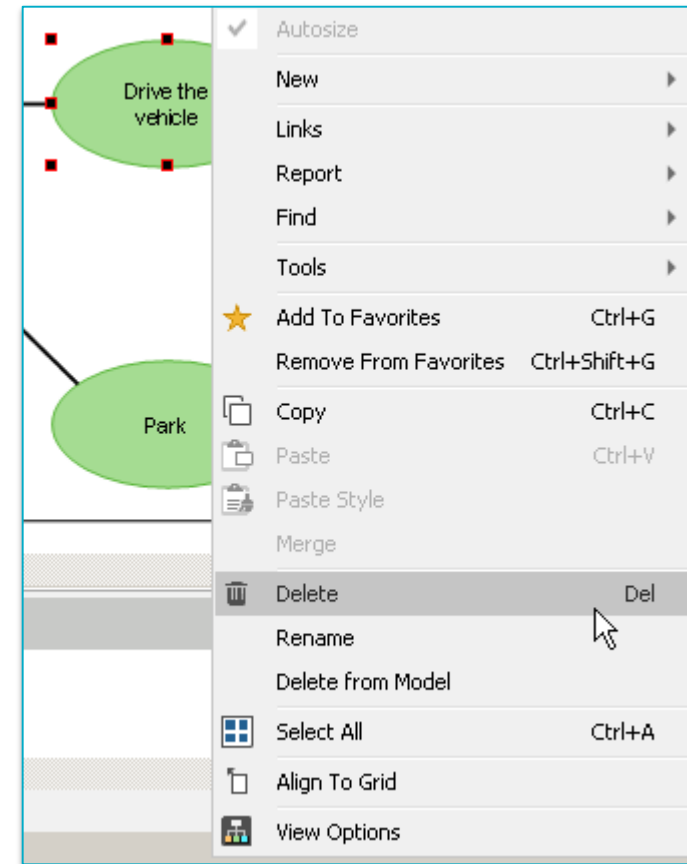


CONTEMPORARY USER INTERFACE

- Configurable quick access toolbar
 - Rapid access to favorite functions

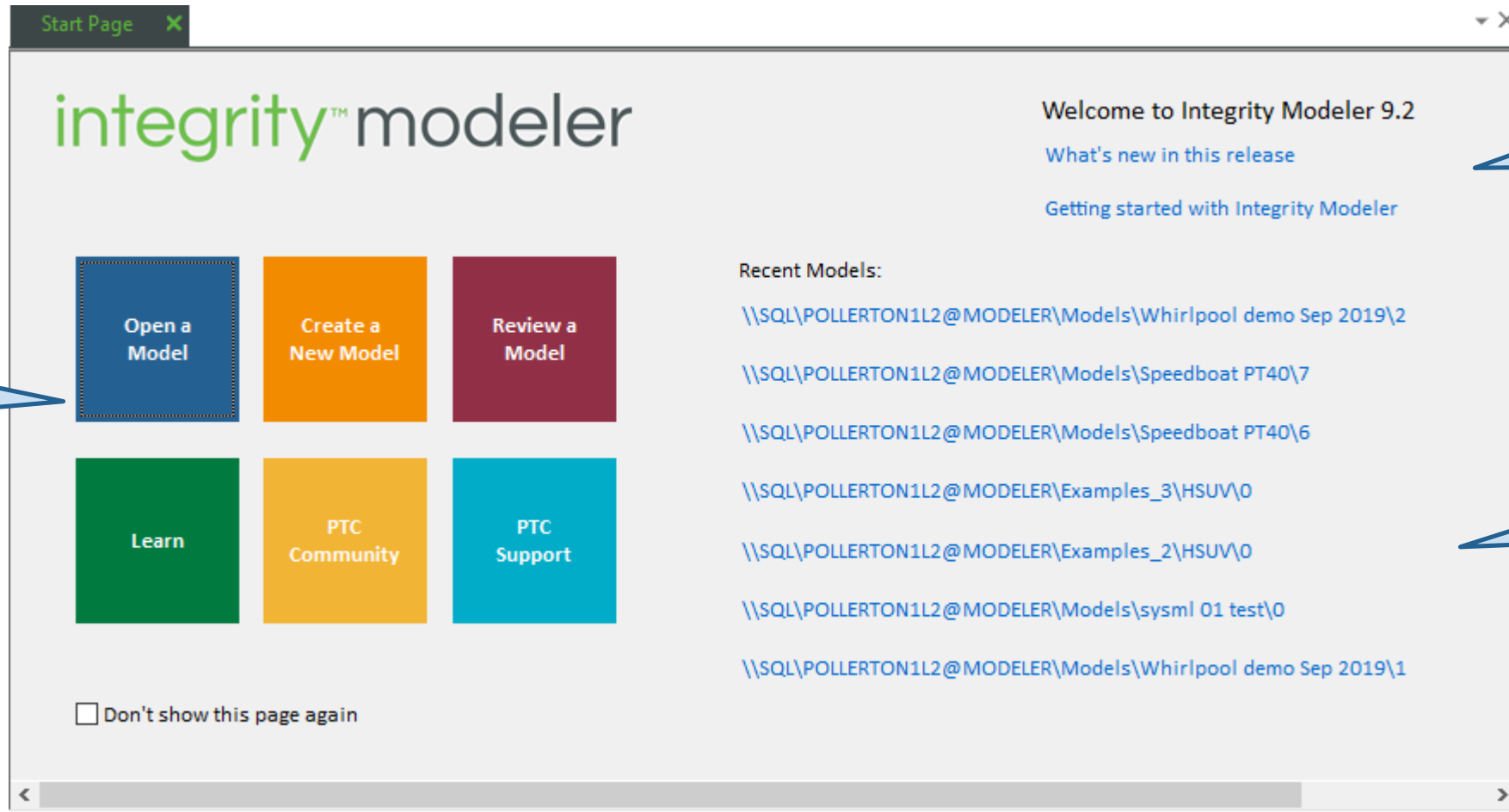


- Icons on context menus make it easier to locate functions



9.2 CONTEMPORARY USER INTERFACE

- Welcome page for access to quick links, recent models and user help



Quick links

What's New and Getting Started Guide

Recent models



AGENDA

- Contemporary user interface
- **Diagramming productivity**
- OSLC integration with Windchill
- OSLC integration with Integrity Lifecycle Manager
- Static model analysis
- Installation and deployment

- Diagram view options

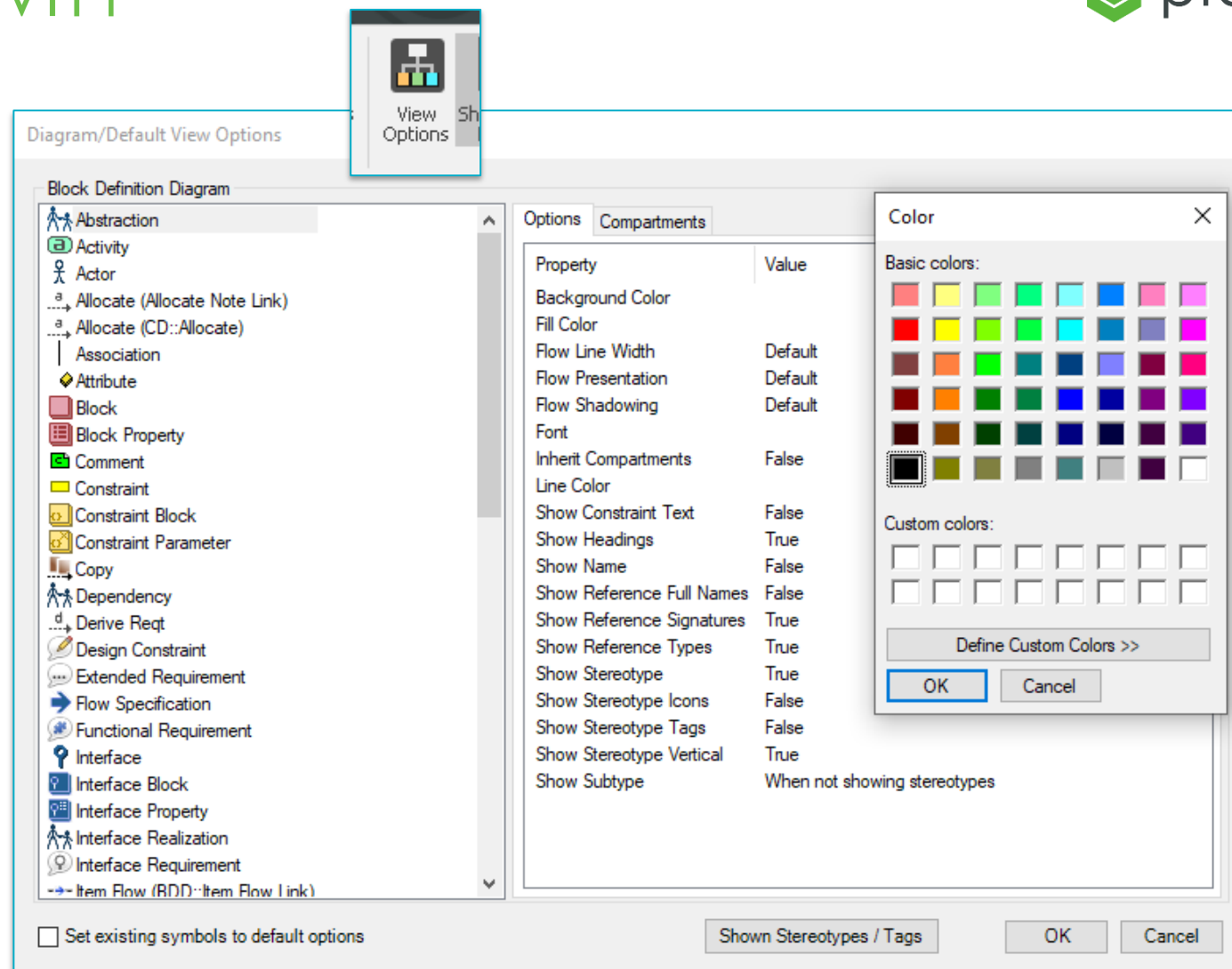
- More consistent across all types of diagrams
- Increasing efficiency when creating diagrams

- Profile diagram style settings

- Integrated with view options
- Simpler & more logical

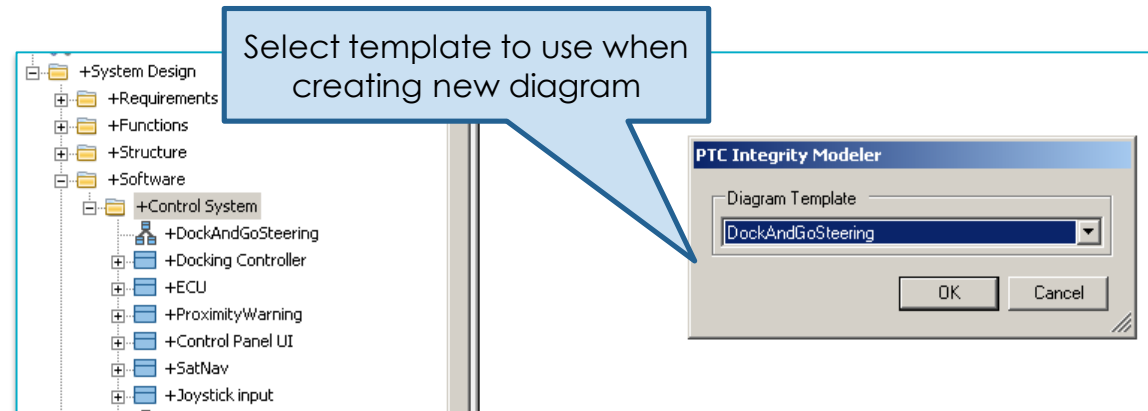
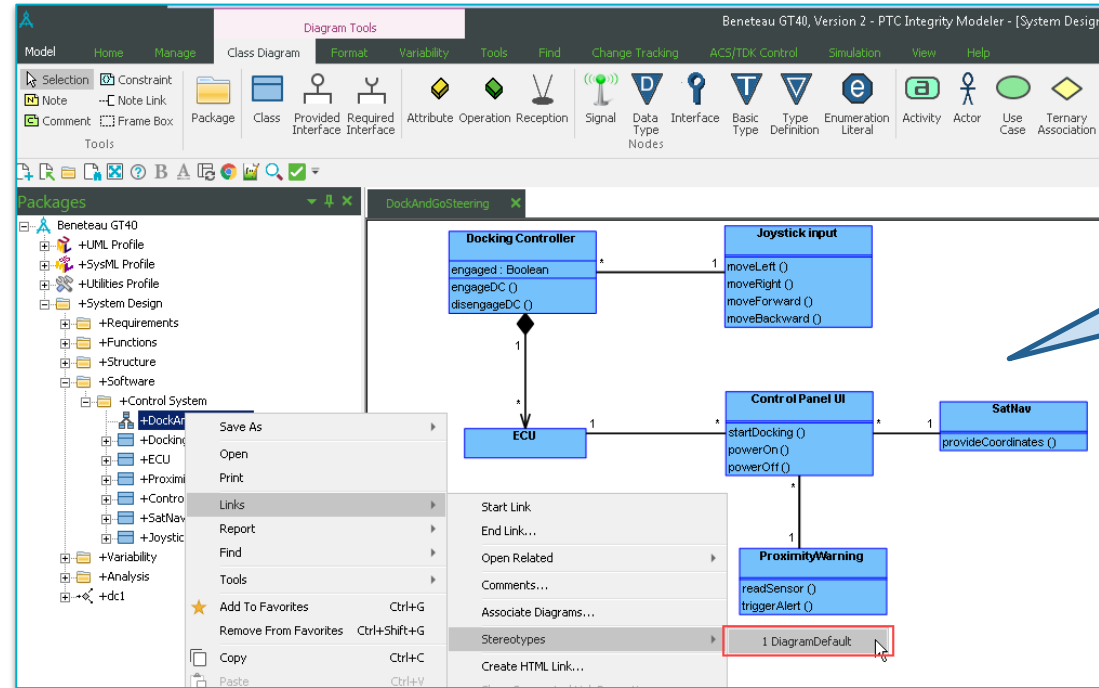
- Pasting options and styles

- Including compartments
- More consistent, increasing productivity when editing diagrams



DIAGRAMMING PRODUCTIVITY

- Diagram templates can now be created for any type of diagram
 - Improving model consistency and increasing productivity when creating diagrams
- You can now drag and drop symbols from profile diagrams to non-profile diagrams
 - Making it easier to re-use model items





AGENDA

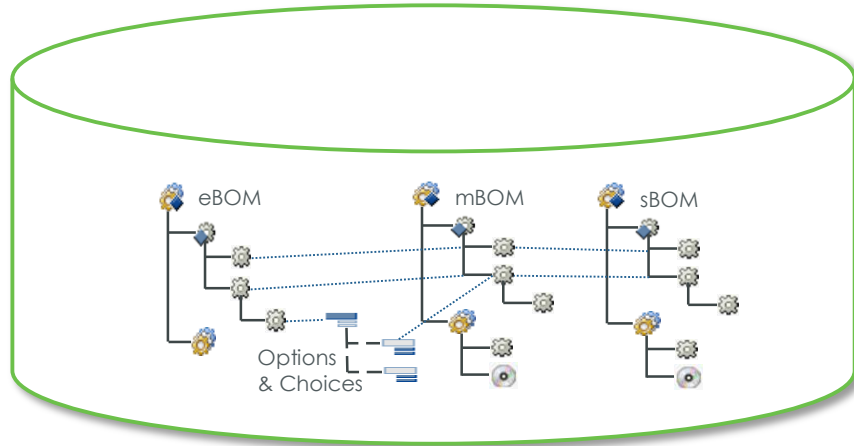
- Contemporary user interface
- Diagramming productivity
- **OSLC integration with Windchill**
- OSLC integration with Integrity Lifecycle Manager
- Static model analysis
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SYSTEMS OF RECORD

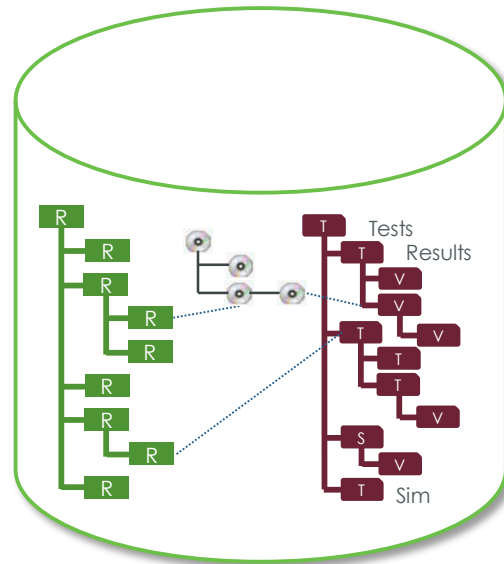
Windchill, Integrity Lifecycle Manager, Integrity Modeler, SAP...



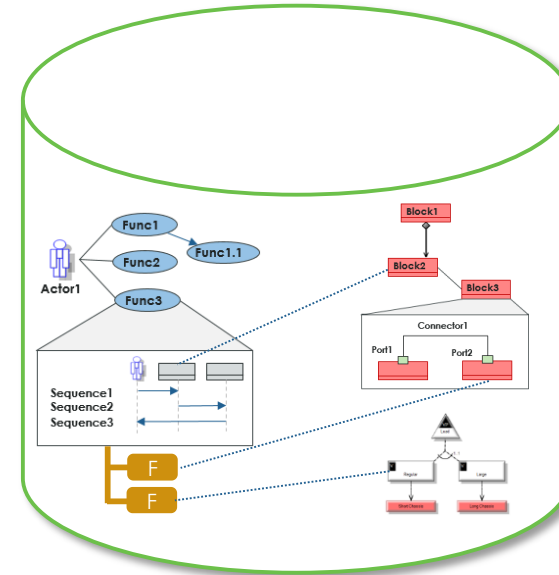
windchill pdmlink®
windchill bom management
windchill platform structures



integrity lifecycle manager



integrity modeler



3rd Party...



Your Best-of-Breed Toolchain

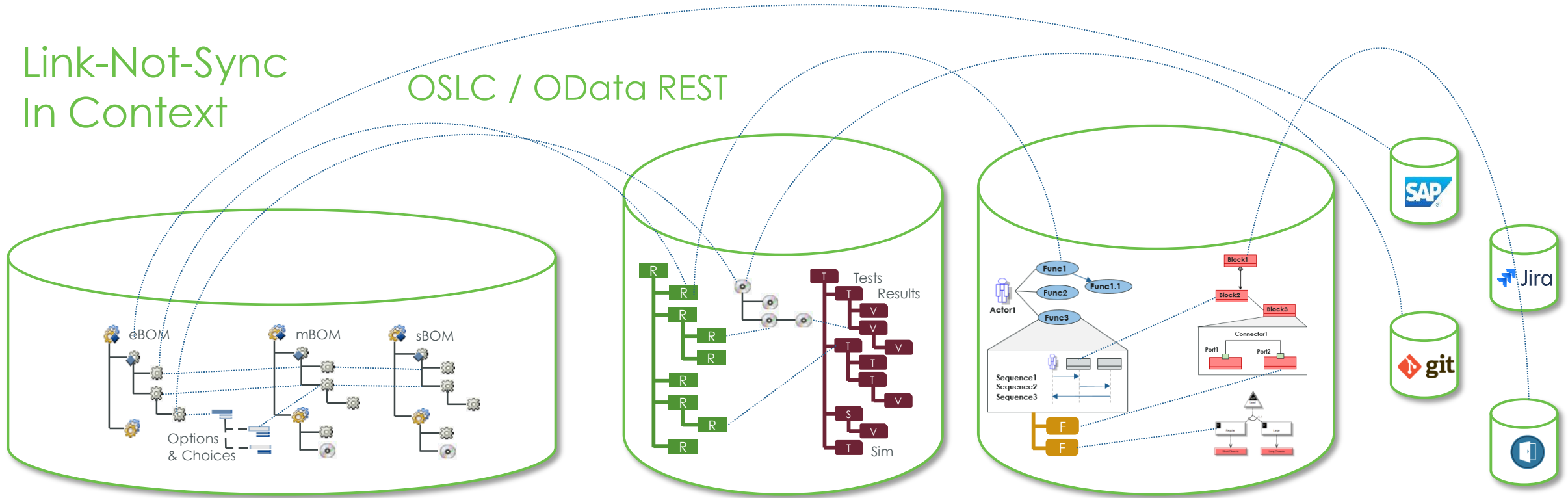
SINGLE (VIRTUAL) SYSTEM OF RECORD

Digital Thread for Design Abstraction, Compliance Traceability and Impact Analysis

Persistent Inter-System of Record Links using Product UIs & UXs

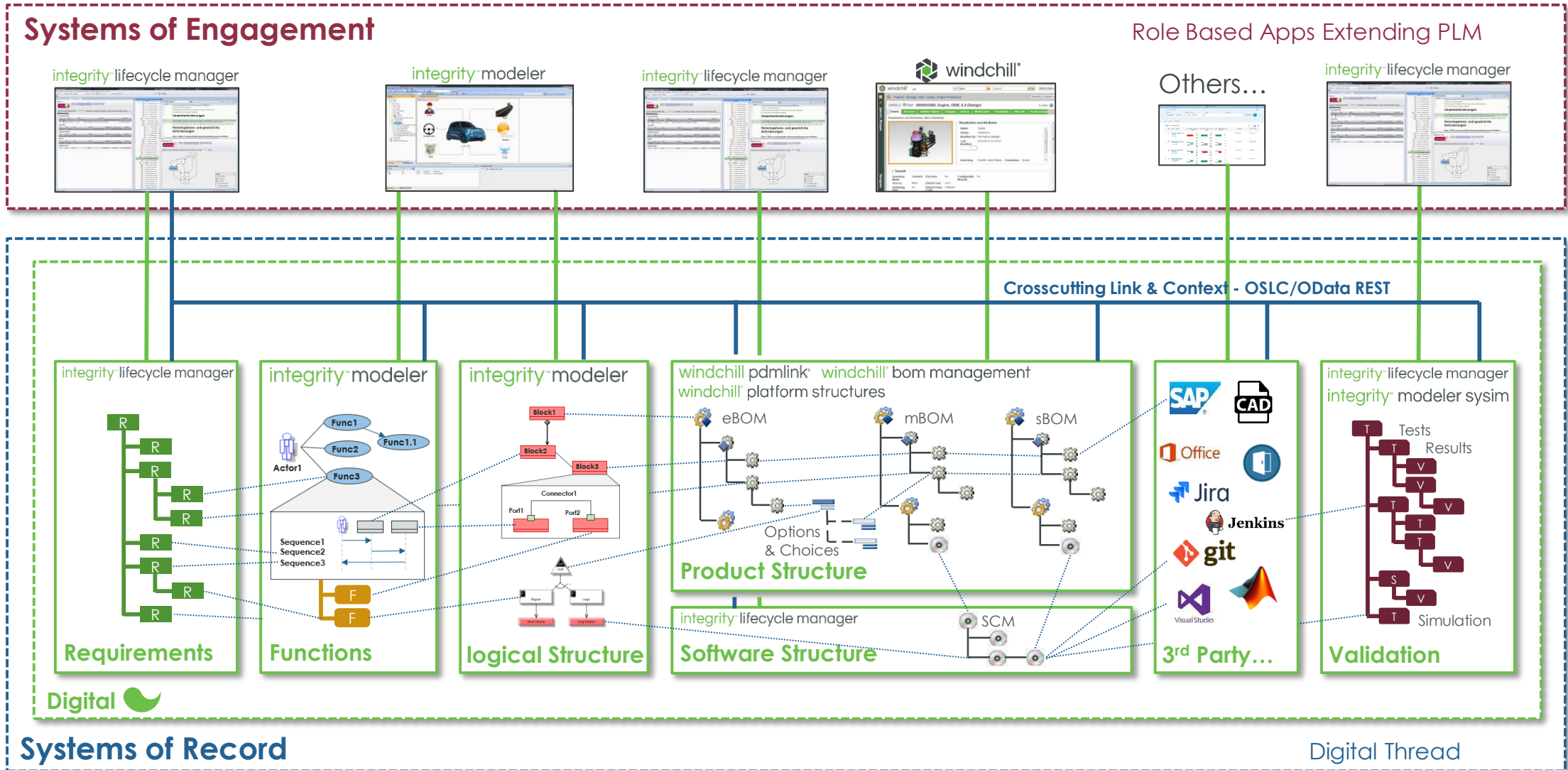
Link-Not-Sync
In Context

OSLC / OData REST



e.g. Trace Requirements 'implemented' by Parts without Duplicating Data

EXTENDED PLM LINKING & TRACING



- Business challenges:

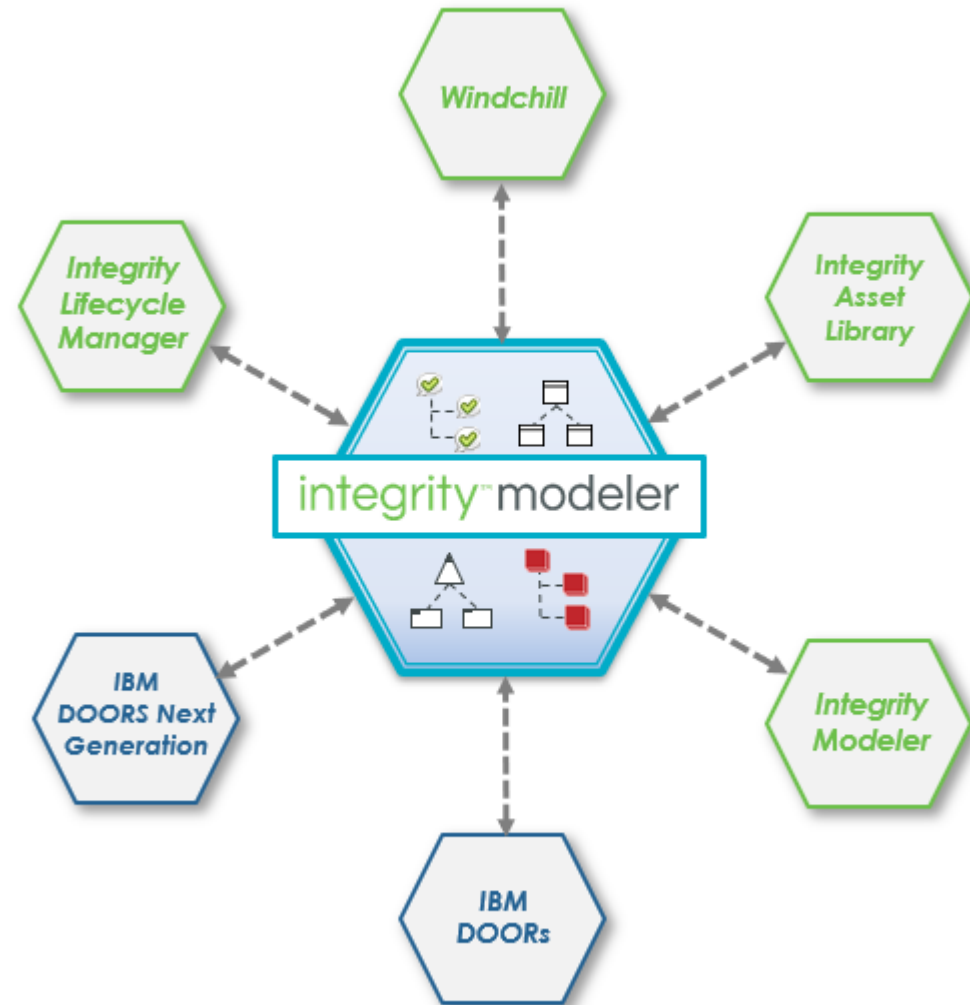
- System engineering designs in Integrity Modeler are disconnected from detailed designs in Windchill
 - E.g. Requirements, Functions, Use Cases & Blocks are not linked to Parts
- Regulatory compliance - lack of traceability between Systems Engineering and PLM means design data is siloed
- Dependencies between designs are unclear, pushing design changes downstream or upstream is hard to manage, costly and inefficient

- Value:

- Establish product traceability between software/systems engineering and PLM design data to enable the digital thread & tool 'qualification'
- Capture design dependencies to better understand impact of change and improve how design changes are implemented

OSLC INTEGRATION WITH WINDCHILL

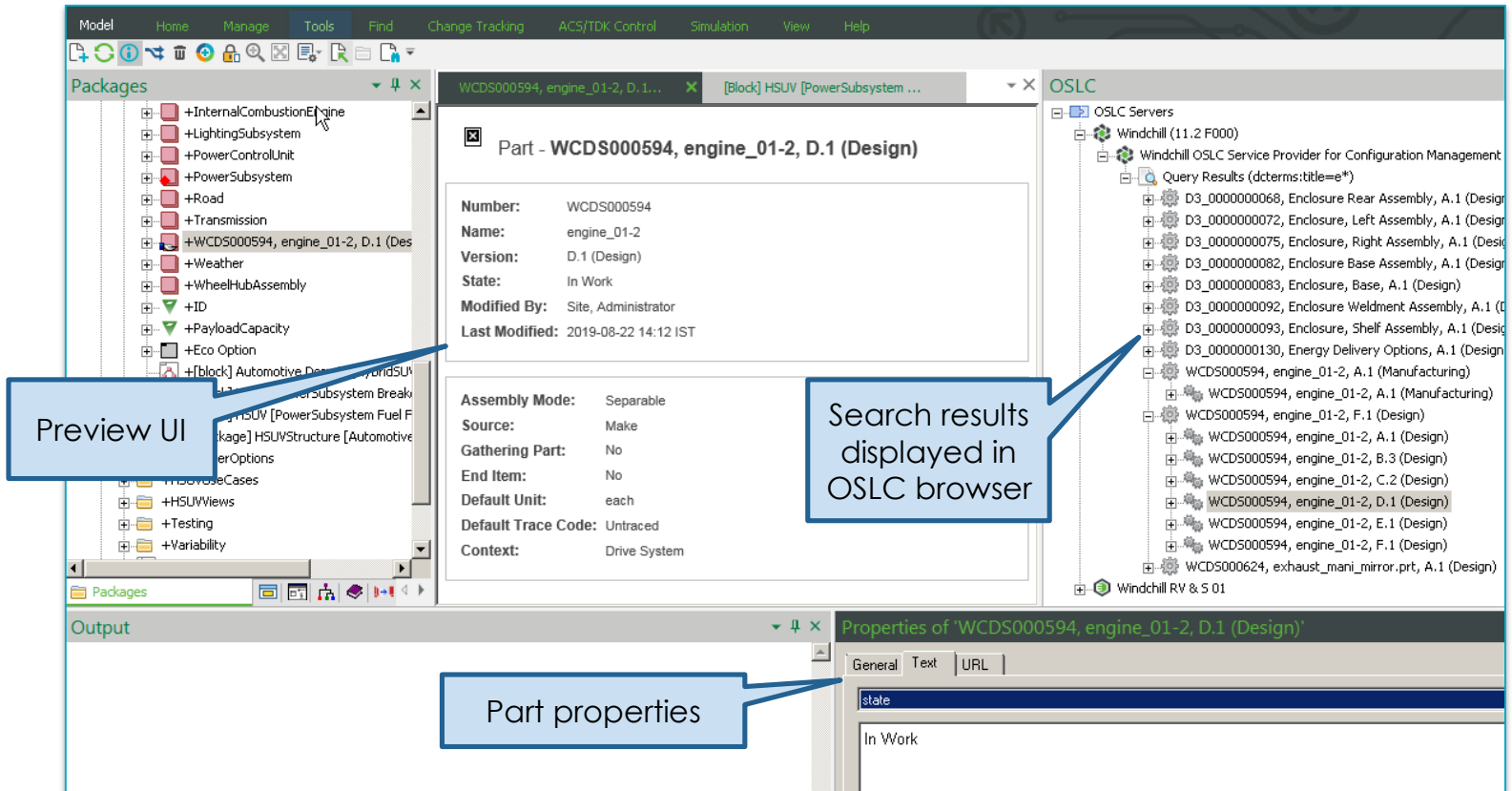
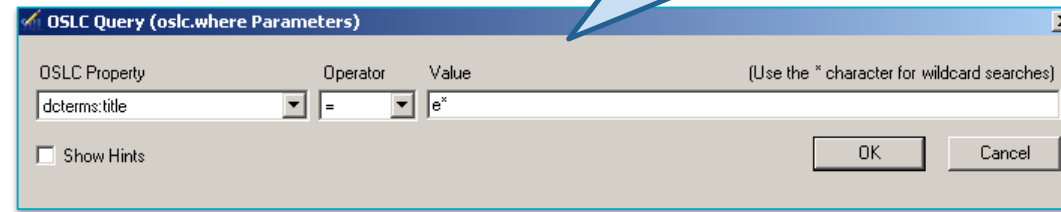
- Ensures design dependencies between Systems & Software engineering and PLM are defined and managed
- Enables Systems & Software Engineering and PLM digital product traceability & impact analysis
- Provides visibility of design changes across the product development lifecycle



OSLC INTEGRATION WITH WINDCHILL

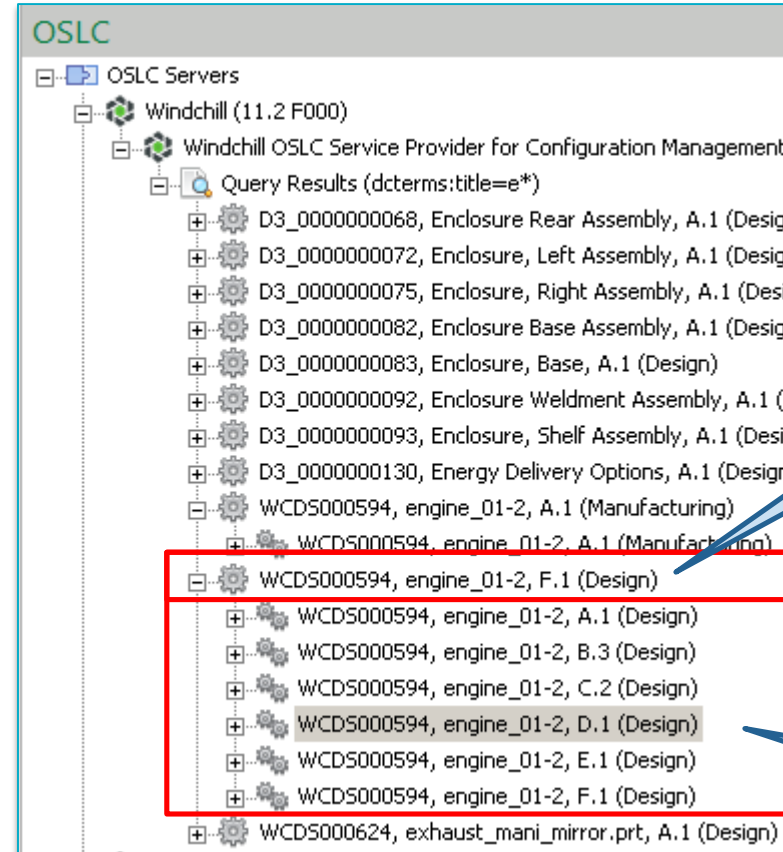
- You can now create and view links to Windchill Parts
- Search queries ensure optimum performance
- Windchill Part properties are displayed
- Preview UI

Specify query



OSLC INTEGRATION WITH WINDCHILL

- All Windchill Part versions are available for linking
 - OSLC Links created using ‘parts’ will be **version-independent**
 - i.e. always point to the latest version
 - OSLC Links created using ‘part versions’ will be static and **version-specific**
 - i.e. always point to a certain version



OSLC

- OSLC Servers
 - Windchill (11.2 F000)
 - Windchill OSLC Service Provider for Configuration Management
 - Query Results (dcterms:title=e*)
 - D3_0000000068, Enclosure Rear Assembly, A.1 (Design)
 - D3_0000000072, Enclosure, Left Assembly, A.1 (Design)
 - D3_0000000075, Enclosure, Right Assembly, A.1 (Design)
 - D3_0000000082, Enclosure Base Assembly, A.1 (Design)
 - D3_0000000083, Enclosure, Base, A.1 (Design)
 - D3_0000000092, Enclosure Weldment Assembly, A.1 (Design)
 - D3_0000000093, Enclosure, Shelf Assembly, A.1 (Design)
 - D3_0000000130, Energy Delivery Options, A.1 (Design)
 - WCDS000594, engine_01-2, A.1 (Manufacturing)
 - WCDS000594, engine_01-2, A.1 (Manufacturing)
 - WCDS000594, engine_01-2, F.1 (Design)**
 - WCDS000594, engine_01-2, A.1 (Design)
 - WCDS000594, engine_01-2, B.3 (Design)
 - WCDS000594, engine_01-2, C.2 (Design)
 - WCDS000594, engine_01-2, D.1 (Design)
 - WCDS000594, engine_01-2, E.1 (Design)
 - WCDS000594, engine_01-2, F.1 (Design)
 - WCDS000624, exhaust_mani_mirror.prt, A.1 (Design)

Part
(defaults to
latest
version)

All part
versions

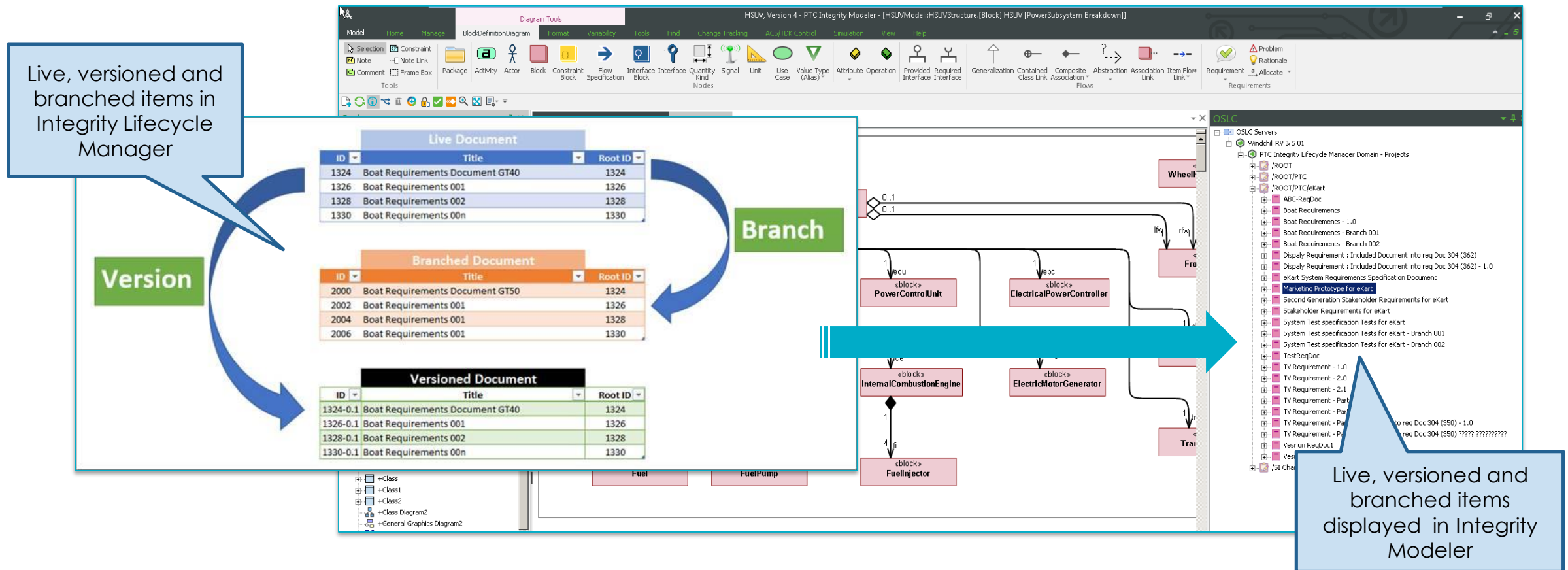


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- Contemporary user interface
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OSLC INTEGRATION WITH INTEGRITY LIFECYCLE MANAGER

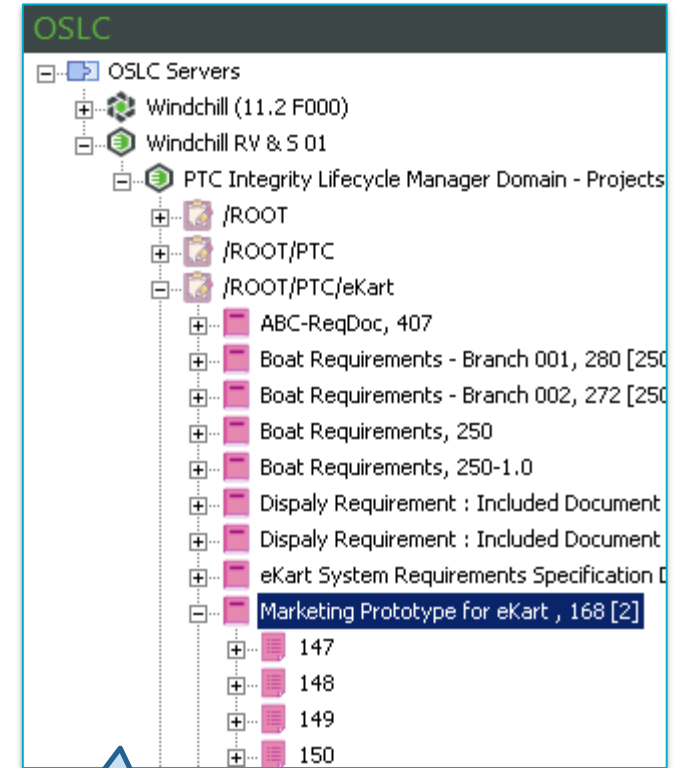
- Integrity Modeler OSLC client can now access and create links to requirement versions and branches in Integrity Lifecycle Manager



OSLC INTEGRATION WITH INTEGRITY LIFECYCLE MANAGER

- You can now link to versioned and branched requirements as well as live requirements
- Versions and branches are clearly labelled

Live Document	<title>, <ID>
Branched Document	<title>, <ID> [<RootID>]
Versioned Document	<title>, <ID with version>



Boat Requirements, 250-1.0	————— ID: 250-1.0 + RootID: 250 = Version
Boat Requirements, 250	————— ID: 250 + RootID: 250 = Live
Boat Requirements - Branch 002, 272 [250]	————— ID: 250 + RootID: 272 = Branch
Boat Requirements - Branch 001, 280 [250]	————— ID: 250 + RootID: 280 = Branch

Live, versioned and branched items shown in Integrity Modeler OSLC client



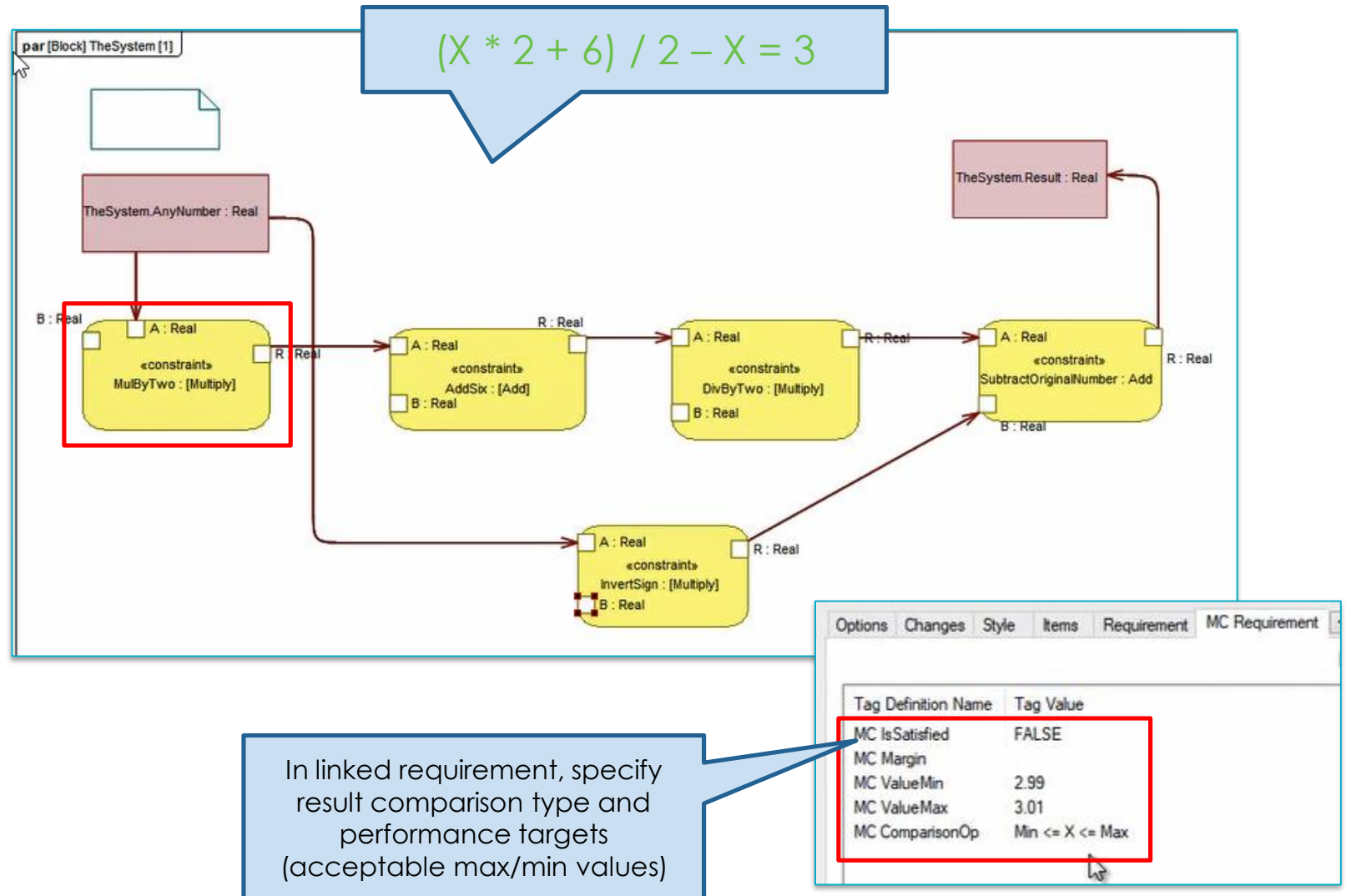
AGENDA

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- **Static model analysis**
- Installation and deployment

- Powerful capabilities for simulating, analyzing and verifying static model behavior
 - Design constraints and parameterized requirements are defined in the Integrity Modeler model
 - ModelCenter takes inputs from the model, performs mathematical calculations and then returns the result to the model, indicating Requirement pass or fail status
- Value
 - Increase design quality with early validation and optimization of system designs
 - Extend the value of MBSE by enabling analysis and simulation throughout the design lifecycle
 - Perform mathematical MBSE Trade Study analysis



- Use SysML Parametrics to define equations
 - With of inputs, calculations and outputs
- Constraint properties define the calculations to be performed by ModelCenter®
- Requirements can be linked to simulation for verification of model behavior



- Run the calculation in ModelCenter® MBSE
- Results are calculated & compared against initial value
- Pass or fail verification of results against requirements
- Modify input values to run trade-off and optimization analysis

The screenshot displays the ModelCenter MBSE interface with several key components:

- Results Table:** A table showing simulation results for various blocks. A callout points to this table with the text "Execution plan and results".

Name	Initial Value	Value	Change	Delta	Delta %
TheSystem					
AddSix					
B	6.0000	6.0000	=	0.0	0.0
R	0.0	34.0000	↑	34.0	
InvertSign					
R	0.0	-14.0000	↓	14.0	
B	-1.0000	-1.0000	=	0.0	0.0
DivByTwo					
R	0.0	17.0000	↑	17.0	
B	0.50000	0.50000	=	0.0	0.0
MulByTwo					
B	2.0000	2.0000	=	0.0	0.0
R	0.0	28.0000	↑	28.0	
Result	0.0	3.0000	↑	3.00	
AnyNumber	14.0000	14.0000	=	0.0	0.0
- Properties of 'Result':** A dialog box showing options for storage and multiplicity. A callout points to it with the text "Results passed back to blocks in model".
- Requirements Table:** A table at the bottom of the main window showing requirement verification. A callout points to it with the text "Results passed back to requirements in model for verification".

Name	Satisfied	Margin
<No Name> JokeRequirem	✓	1.0000E-2
- Options Dialog:** A dialog box showing tag definitions. A callout points to it with the text "Results passed back to requirements in model for verification".

Tag Definition Name	Tag Value
MC IsSatisfied	True
MC Margin	0.00999999999999997903
MC ValueMin	2.99
MC ValueMax	3.01
MC ComparisonOp	Min <= X <= Max



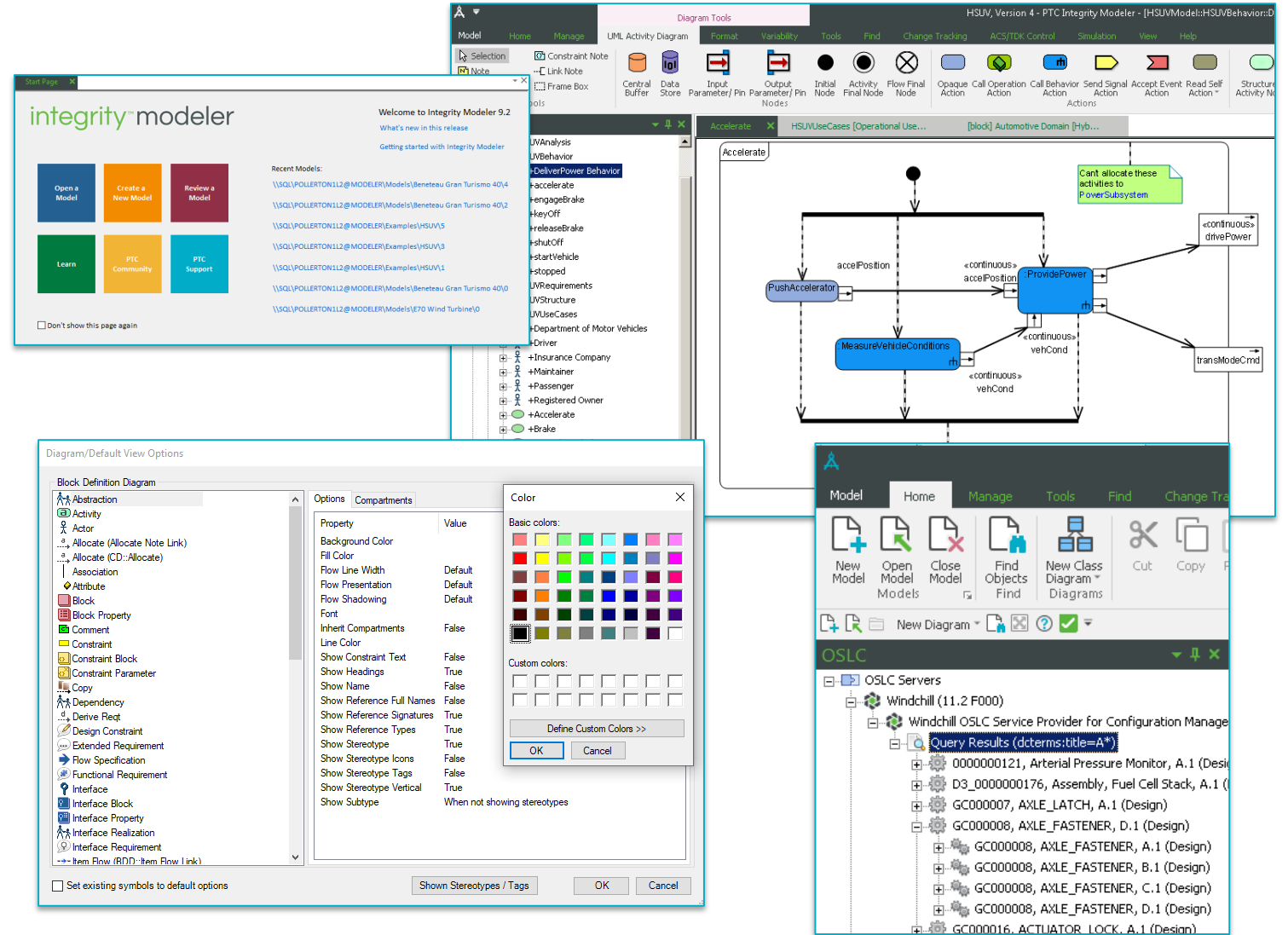
AGENDA

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- **Installation and deployment**

- Installation & deployment are now more flexible with an optional location for the *ModelerATFiles* directory
 - The location can be a local or network drive, defined using a UNC path
 - e.g. \\servername\path
- Performance improvements for:
 - Create model, delete model
 - Package clone, package import, clone diagram
 - Update profiles, delete large package
 - Reconcile, rebase
 - Populate
 - These performance improvements are greater for large models

INTEGRITY MODELER 9.2 SUMMARY

- Contemporary user interface
- Diagramming productivity
- OSLC integration with Windchill
- OSLC integration improvements for Integrity Lifecycle Manager
- Static model analysis and simulation
- More flexible installation and deployment





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