



Publishing and reviewing models on the Web

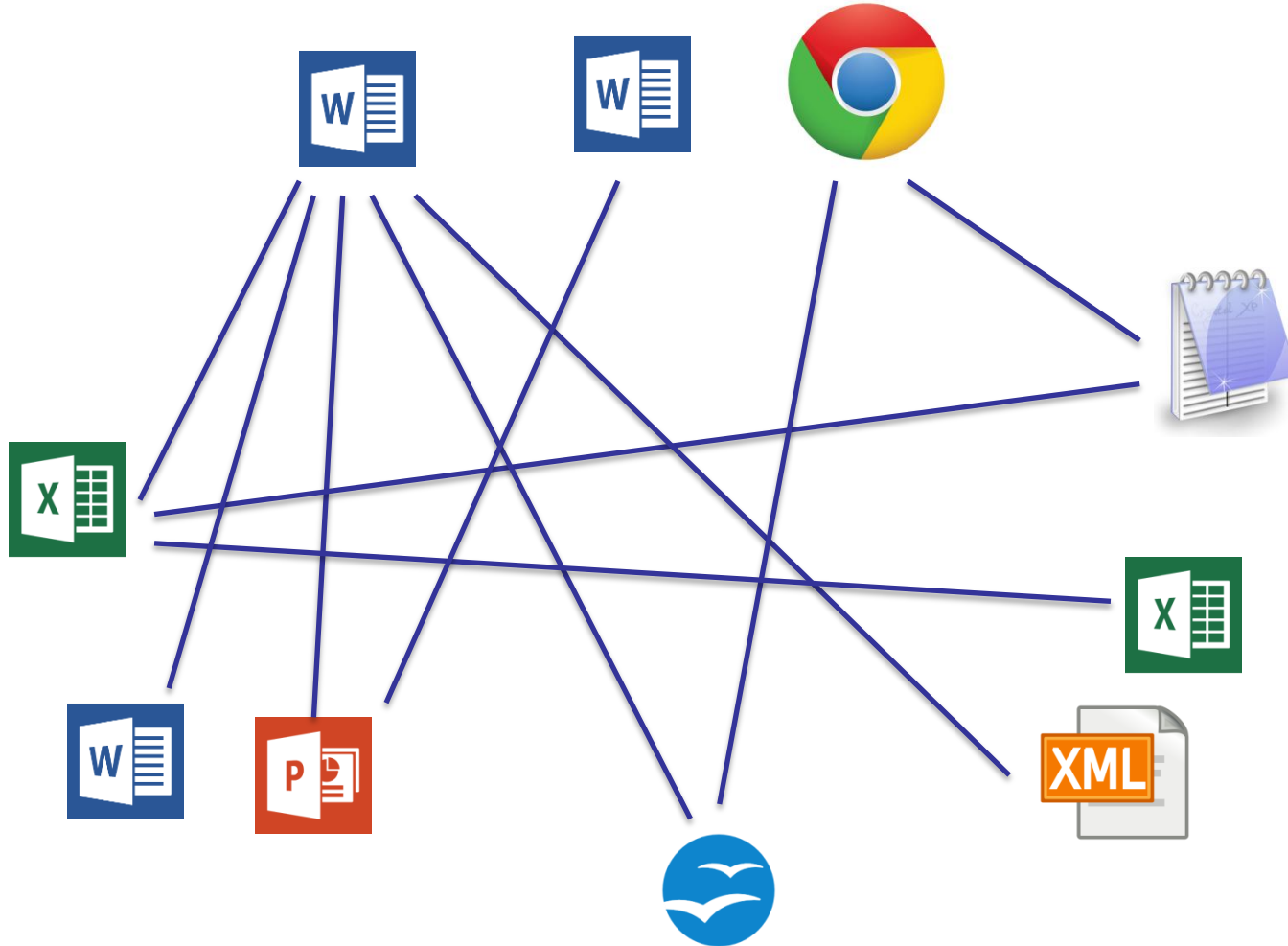
Dr. Andrius Armonas, MagicDraw Product Manager

Presentation agenda

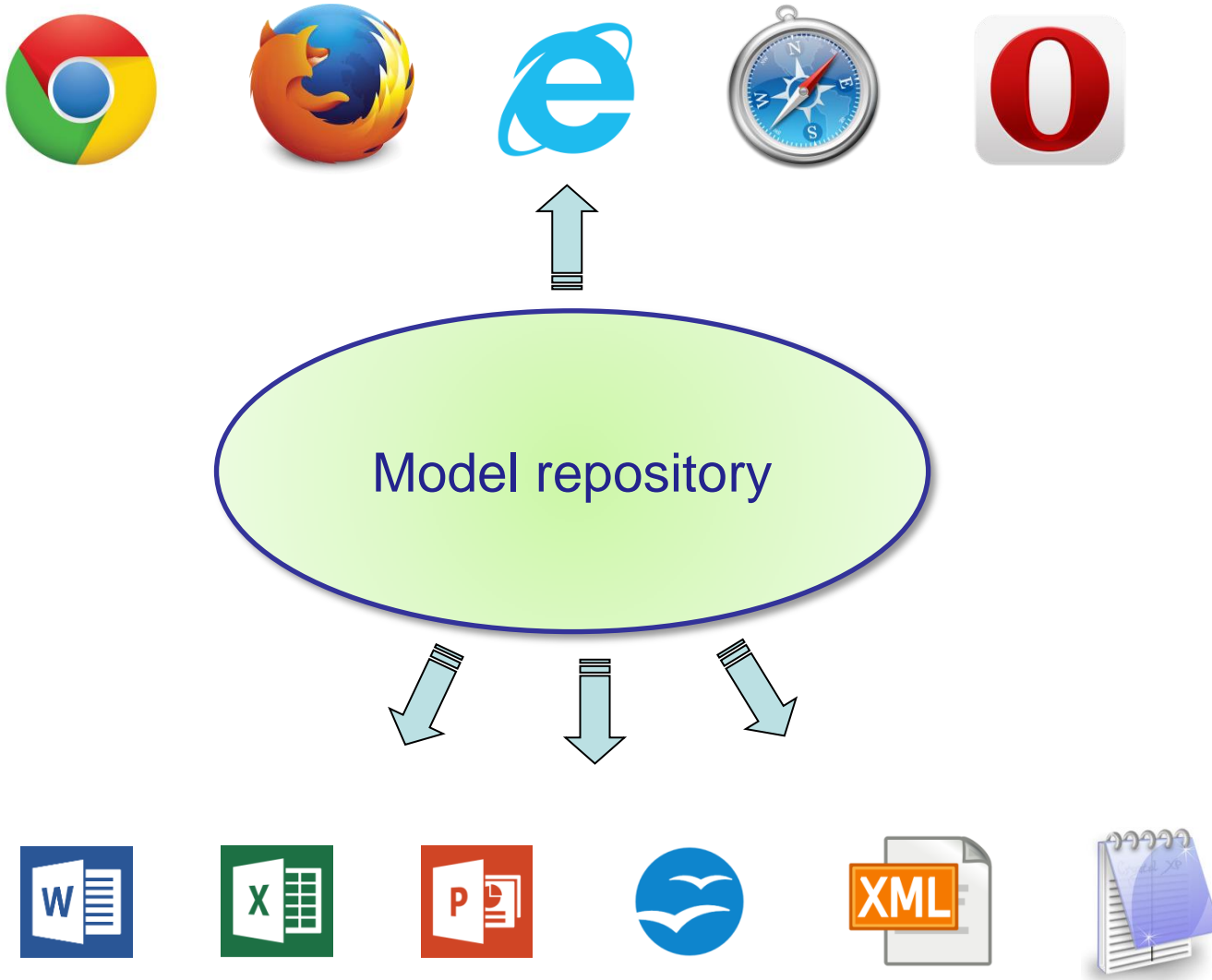


- **Introduction: the problem being solved**
- **Technologies supported by Cameo Systems Modeler for work product generation**
 - Template-based reports
 - Generation of work products directly from the model
 - SysML Views&Viewpoints approach for document generation
 - SysML Views&Viewpoints approach for web content generation:
 - Publishing of models on the web
 - Reviewing published models on the web and tracking review progress
 - Integrating published models with Wikis
 - Customization of appearance and information fidelity of published models

Introduction: document-based SE



Introduction: single source of truth





Template-based reports

VTL template-based reporting

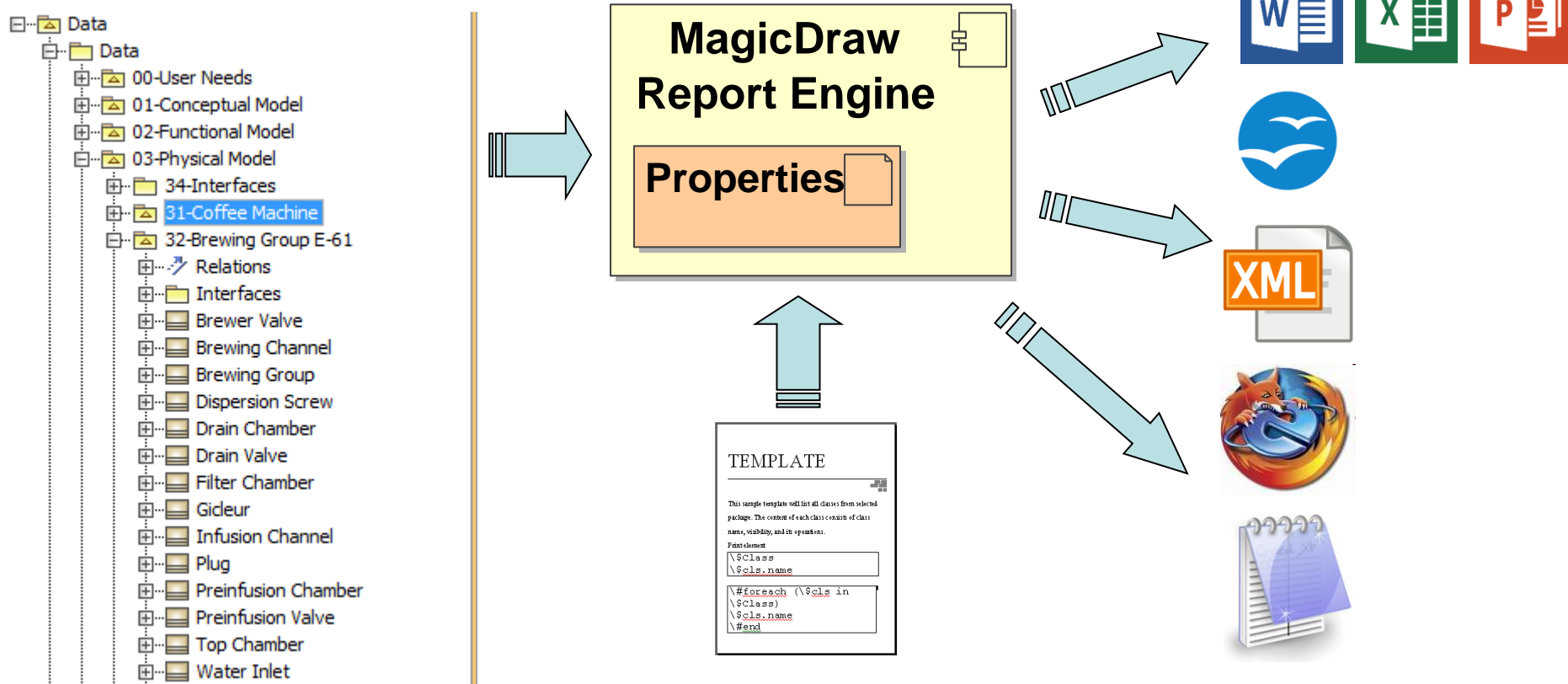


- The Apache Velocity Engine is a free open-source templating engine
- Velocity Template Language (VTL) is a scripting language used by the Velocity Engine
- MagicDraw VTL templates describe the following properties of the document:
 - Layout
 - Style
 - Header & footer
 - Static texts
 - Placeholders for Cameo Systems Modeler / MagicDraw elements

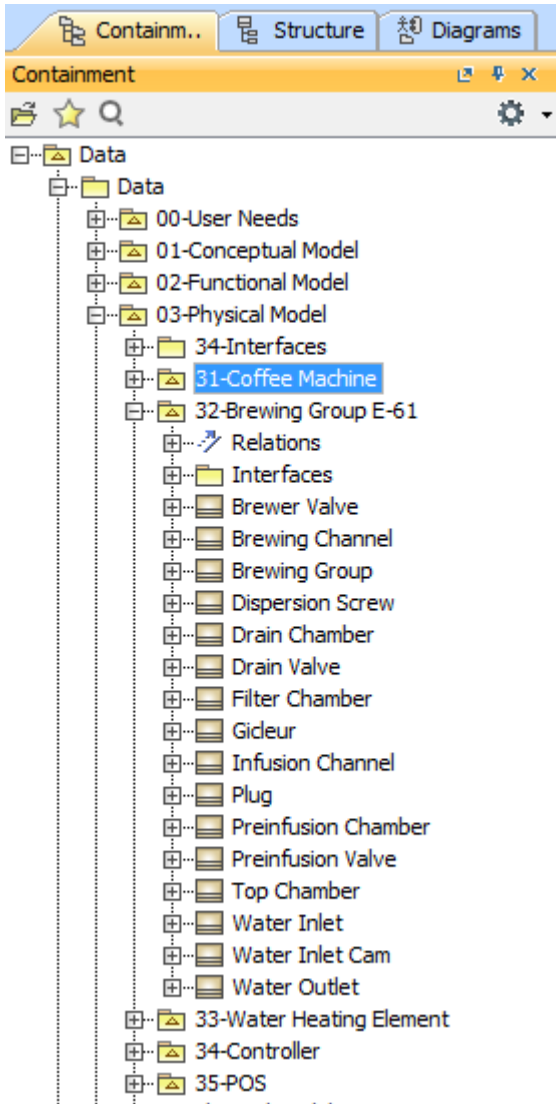
VTL template-based reporting



Generate Microsoft Word, Excel, PowerPoint, HTML, Open Office, XML documents or any other plain text report from the model









VTL template-based reporting



Template:

Blocks	Description
<pre>#forrow (\$block in \$sorter.sort(\$Block, "name")) \$report.getIconFor(\$block) \$block.name</pre>	<pre>\$report.getComment(\$block) #endrow</pre>

Resulting Word document:

Blocks	Description
 Brewer Valve	<i>Brewer Valve component BR-458.</i>
 Brewing Channel	
 Brewing Group	
 Dispersion Screw	
 Drain Chamber	
 Drain Valve	

Web reports



- **Web reports 2.0**

- Full information from the model is published on the web
- Easily customizable

The screenshot shows the 'The MagicDraw Web Publisher 2.0' application. On the left is a 'CONTAINMENT' tree with a 'Diagrams' tab. The tree structure is as follows:

- Data
 - Relations
 - 00 User Needs
 - User Needs
 - [UN10] Bills
 - [UN18] Coffee Cup
 - [UN15] Coffee Temperature
 - [UN9] Credit Card
 - [UN8] Debit Card
 - [UN5] Efficient Work
 - [UN6] Failure Rate
 - [UN3] Footprint
 - [UN2] Fresh Milk
 - [UN13] Freshly Ground
 - [UN14] Front Design
 - [UN4] Hygiene Requirements
 - [UN16] Machine Maintenance
 - [UN7] Money
 - [UN17] Security
 - [UN12] UHT Milk
 - [UN11] Usability

The main area displays a 'Requirement Money' report. It has tabs for 'Specification' and 'Appears in', and a 'Mode : Standard' dropdown. The report content is organized into two sections:

- General Information**
 - Name : Money
 - Owner : 00 User Needs
- Stereotype Requirement**
 - Id : UN7
 - Text : The money must be kept safe.

MBSE web portal



- Only the most important information from the model is published on the web
- Views on the system from multiple perspectives
- Customizable by No Magic
- <http://webreports.nomagic.com>

The screenshot shows the Cameo Systems Modeler interface. On the left is a tree view of requirements, including 00-Requirements, 00-Mission Objectives, 01-Functional Objectives, 02-Security Objectives, 03-Interface Objectives, and 04-Usability Objectives. The main area displays a detailed view of a requirement titled "Develop ATM Machine". Below the title, there are sections for Characteristics and Derived. The Derived section contains a table with 5 rows, each representing a derived requirement.

#	Id	Name	Description
1	SO1	Integration of Hardware Components	Avert magnetic-stripe and other account data compromise and PIN stealing
2	SO2	Security of Basic Software	Avert magnetic-stripe skimming and PIN stealing
3	SO3	Device Management/Operation	Ensure adequate management of: ATM during manufacturing ATM in storage of deployed ATM estates ATM individual security configuration (hardware and software)
4	SO4	ATM Application Management	Address security aspects of the ATM application.
5	FO1	Cash Withdrawal	A customer shall be able to make a cash withdrawal from any suitable

MBSE web portal: basic commenting



The screenshot shows the MBSE web portal interface. A 'Comment' dialog box is open, allowing users to add comments to use cases. The dialog has a title bar with a close button (X). It contains two text input fields: 'Summary:' and 'Description:'. The 'Description' field contains the text 'I cannot find pre-conditions of this use case.' and a character count 'Max. 1500 characters'. A 'Send' button is located at the bottom right of the dialog. In the background, a list of use cases is visible, with 'Order items' selected. To the right, a table shows the details of the selected use case.

#	Name
1	Lib
2	Adi
3	Cu

MBSE web portal: basic commenting



The screenshot displays the MBSE web portal interface. On the left, a sidebar shows a list of requirements: **TEST-42 Pre-conditions** and **TEST-27 Specify process**. Red arrows point to these items with the text "Two comments on the list". The main content area shows the details for **test / TEST-42**, with the project name "test" highlighted by a red arrow. The title of the comment is **Pre-conditions**, also highlighted by a red arrow with the text "Summary of the comment". Below the title are buttons for **Edit**, **Start Progress**, **Resolve Issue**, and **Close Issue**. The **Details** section shows the following information: Type: ☒ Bug; Status: **OPEN** (View Workflow); Priority: **↑ Critical**; Resolution: Unresolved; Labels: None. The **People** section shows the Assignee as **User User** and the Reporter as **User User**. The **Description** section contains the comment text: "I cannot find pre-conditions of this use case." and a link to the content: http://example.com/report.html/#Requirement__17_0_1_1698042e_1326652123232_466083_39304. Red arrows point to the comment text and the URL with the labels "Comment text" and "Element URL" respectively.

Order by Priority ▾

- ☒ **TEST-42**
Pre-conditions
- ☒ **TEST-27**
Specify process

Project name **test / TEST-42** 1 of 2 ▴ ▾

Pre-conditions

Edit Start Progress Resolve Issue Close Issue

Details

Type: ☒ Bug
Status: **OPEN** (View Workflow)
Priority: **↑ Critical**
Resolution: Unresolved
Labels: None

People

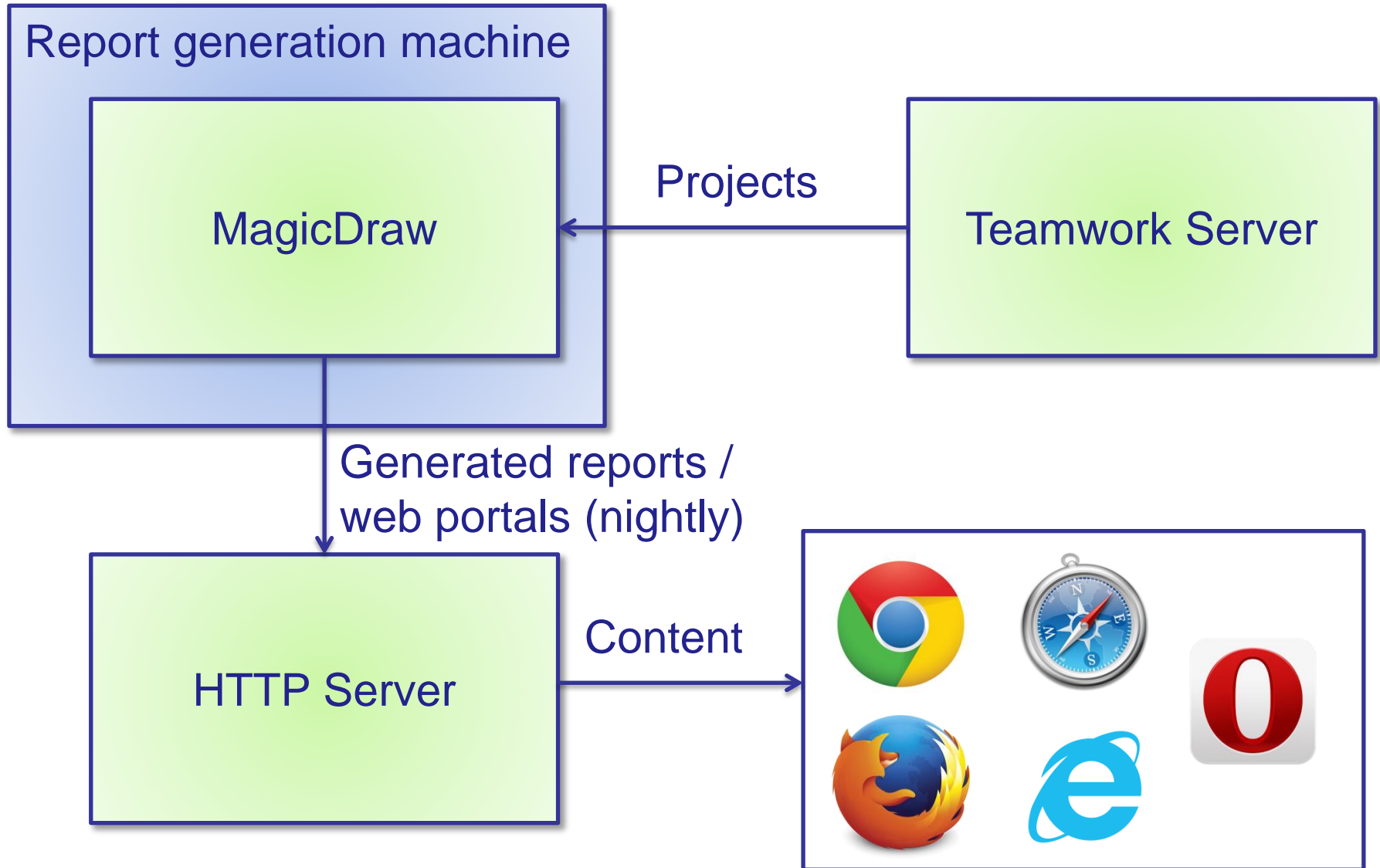
Assignee: User User
Reporter: User User

Description

Comment text → I cannot find pre-conditions of this use case.

Element URL → http://example.com/report.html/#Requirement__17_0_1_1698042e_1326652123232_466083_39304

Automated generation of reports





Demo of template-based reports

Overview



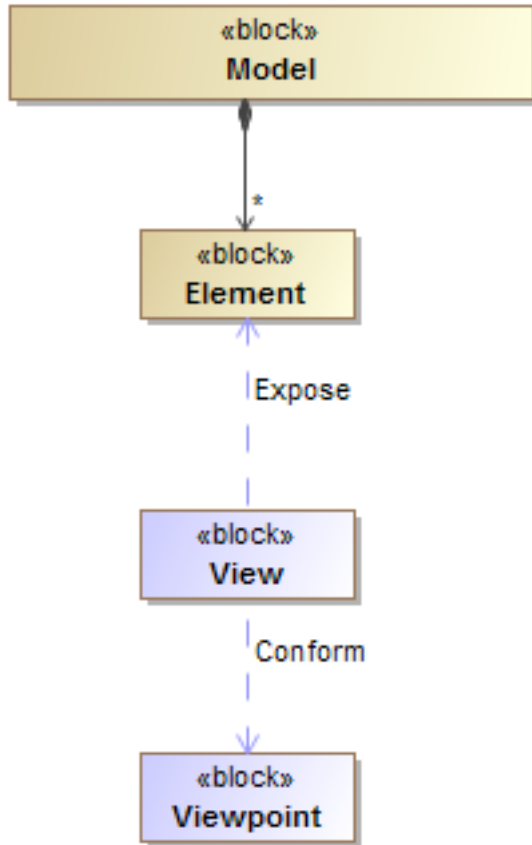
Technology	Target user group	Templates supported	Commenting supported	Customization can be done by	Customization technology
VTL templates for documents (Word, Excel, etc.)	Non-modelers and modelers	Yes	Yes, basic support	Customer	VTL scripting
Web reports	Modelers	Yes	No	Customer	VTL scripting
Web Portals	Non-modelers and modelers	Yes	Yes, basic support	No Magic	Java coding



SysML

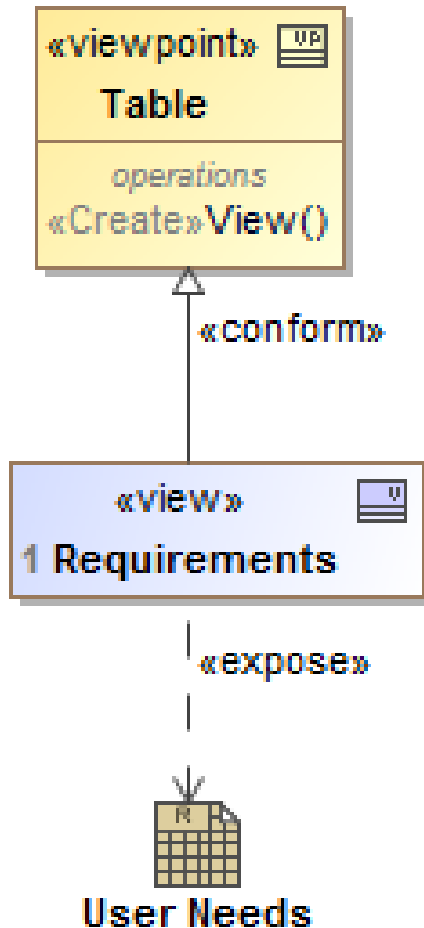
Views&Viewpoints for document generation

SysML Views&Viewpoints concept



- Systems specifications are stored in models in MBSE
- Viewpoints specifies rules how to represent model in a suitable way to stakeholders
- The view is a representation of the system from the perspective of a viewpoint
- More information:
 - <http://model-based-systems-engineering.com/2014/10/02/whats-new-in-sysml-1-4-view-and-viewpoint/>

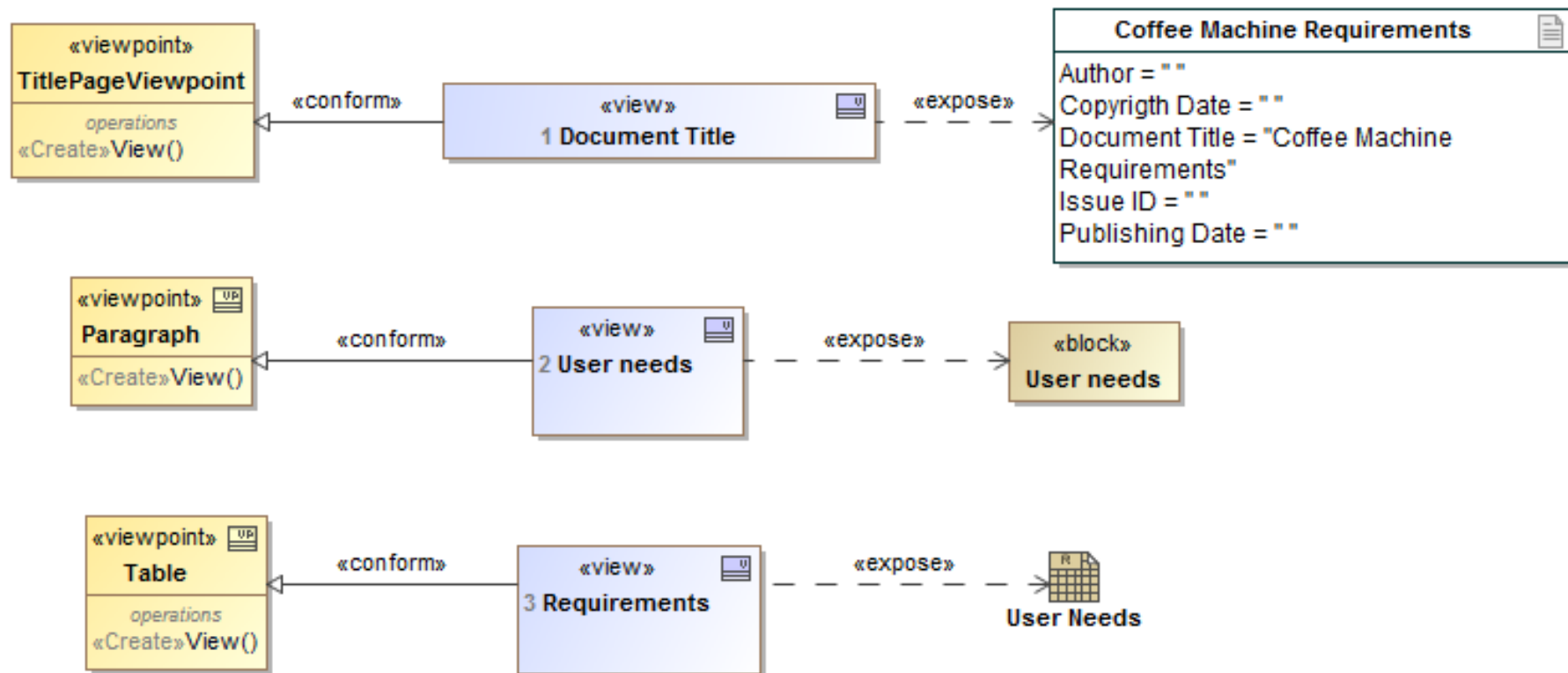
SysML Views&Viewpoints example



Generated content:

#	Id	Name	Text
1	UN2	Fresh Milk	I want fresh milk.
2	UN3	Footprint	The footprint must be less than 1.5 square meters.
3	UN4	Hygiene Requirements	The device must meet the health requirements.
4	UN5	Efficient Work	The devices must work efficiently after 1 year.
5	UN6	Failure Rate	The failure rate can not be higher than 1 time a month for max. 1 hours.
6	UN7	Money	The money must be kept safe.
7	UN8	Debit Card	I would like to pay by debit card.
8	UN9	Credit Card	I would like to pay by credit card.
9	UN10	Bills	The device must take bills up to 10 Euros.
10	UN11	Usability	The operation must be for all travelers and employees quick and easy to use.
11	UN12	UHT Milk	I want to UHT milk.

SysML Views&Viewpoints example





Demo of SysML Views&Viewpoints

Overview



Technology	Target user group	Templates supported	Commenting supported	Customization can be done by	Customization technology
VTL templates for documents (Word, Excel, etc.)	Non-modelers and modelers	Yes	Yes, basic support	Customer	VTL scripting
Web reports	Modelers	Yes	No	Customer	VTL scripting
Web Portals	Non-modelers and modelers	Yes	Yes, basic support	No Magic	Java coding
Document Modeling plugin / SysML V&V	Non-modelers and modelers	Partially	No	Customer	Modeling



SysML

Views & Viewpoints for web content generation

What is Cameo Collaborator?



MagicDraw (desktops)

Content creators
- modelers

Provide content

Provide feedback

Provide content

Provide content

Provide content

Cameo Collaborator (web)

Model
reviewers

Model
readers/users

Model editors /
contributors to
models
The future



Use cases:

- View & understand content
- Review and provide feedback on content
- Approve content

Types of users:

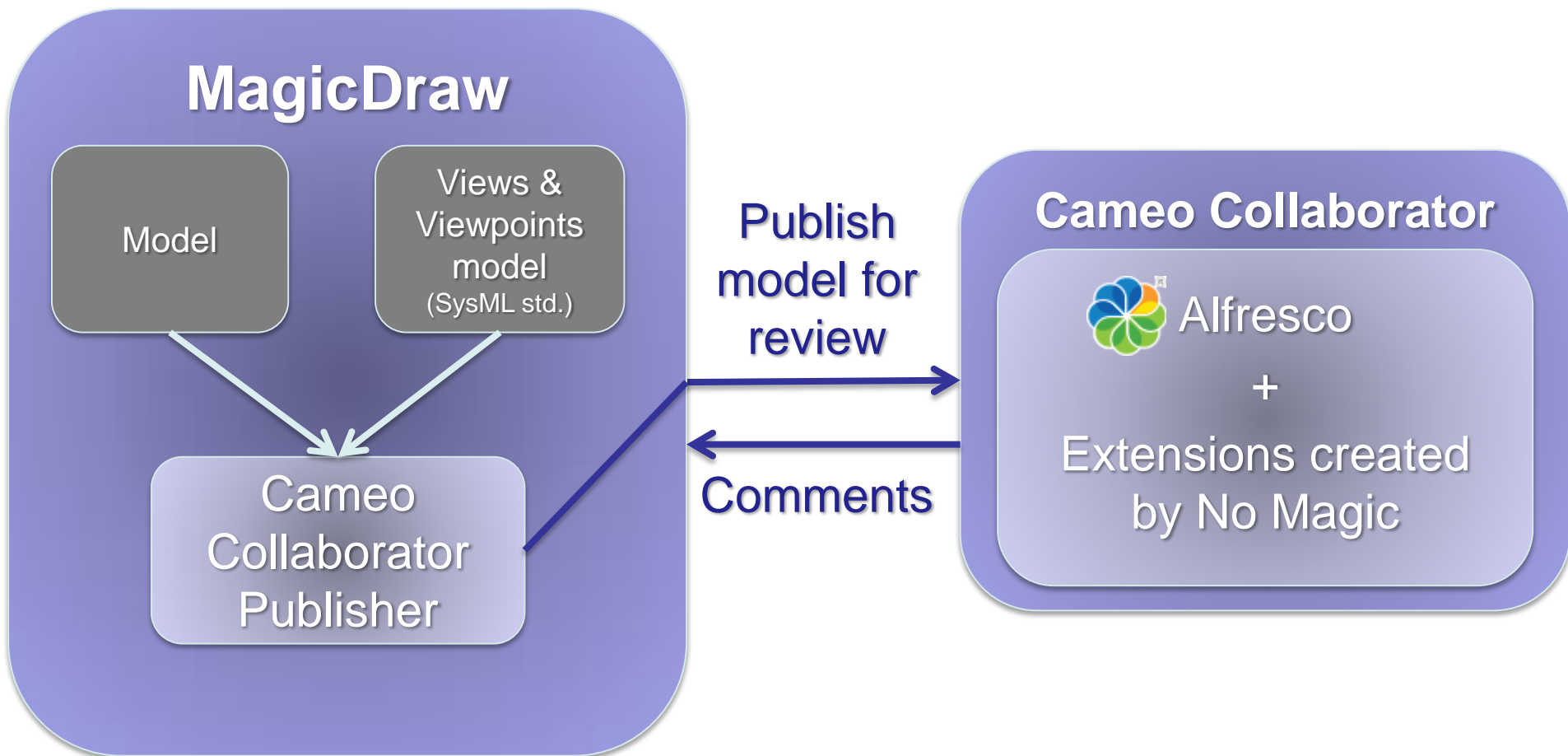
- Non-modelers (people who were not trained in MagicDraw nor are equipped with it)
- Modelers

Supported portals in the final product



- Systems Engineering
- Enterprise Architecture
- Business Architecture
- Software Engineering
- Full model template

Cameo Collaborator high level architecture



What is Alfresco?



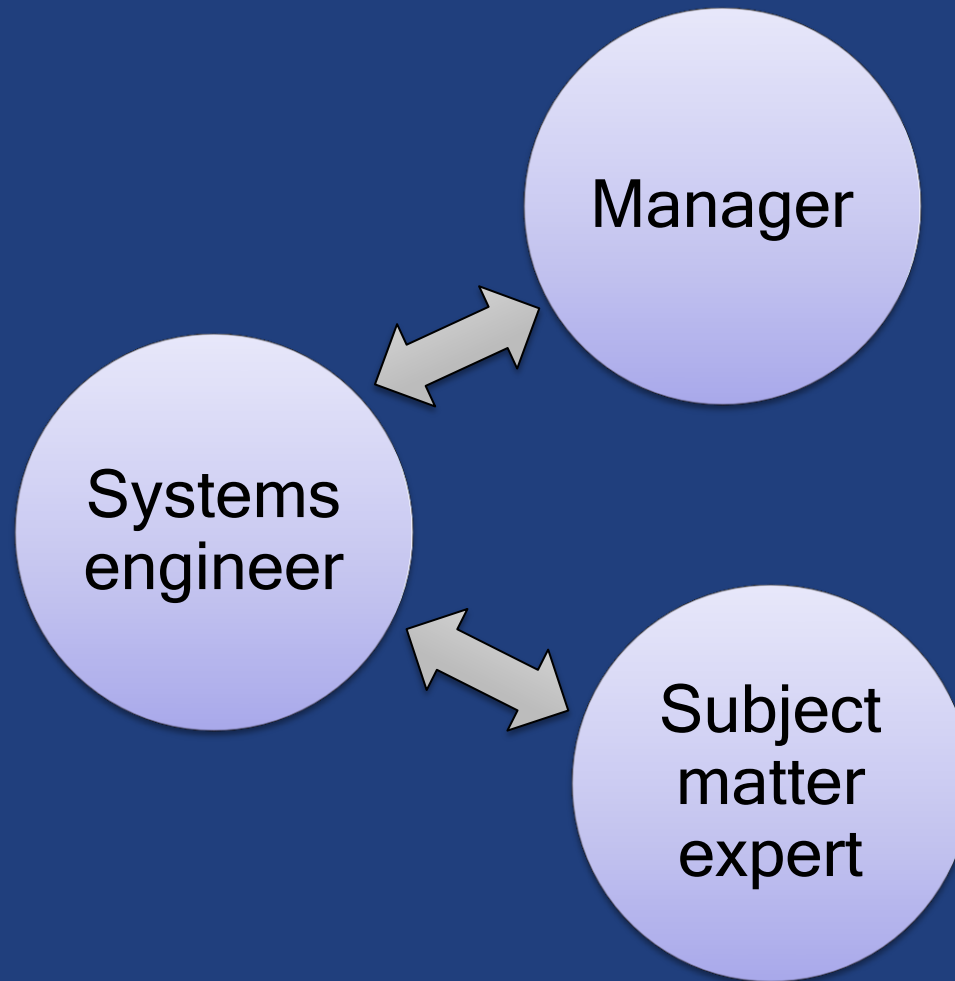
Alfresco is enterprise-class document management system

- A single repository to manage any kind of electronic file
- Works on-premise and in the cloud
- Simple to use and easy to deploy
- Very extensible
- Has the metamodel underneath that can be customized
- Integrated workflow to manage complex business processes
- Fully-functional Alfresco Community edition available for free for commercial use, licensed under LGPL v3.0



Demo

Demo story

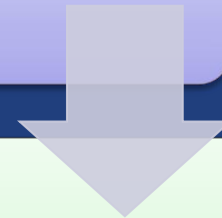


Demo story



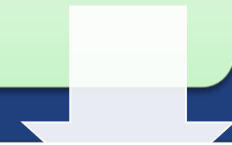
Systems engineer: publish model

- Publish model to Cameo Collaborator
- Provide reviewers with a link to published model



Subject matter expert (SME), manager: review model

- Log in to Cameo Collaborator
- Make comments for model parts



Systems engineer: react to comments

- Filter unresolved comments
- Navigate to commented places, fix models & resolve comments

Demo



- Tracking review progress
- Integrating published models with Wikis
- Customization of appearance and information fidelity of published models

Overview



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Cameo Collaborator / SysML V&V	Non-modelers and modelers	Yes	Yes, advanced support	Customer	Modeling



Thanks!