



Integration of Capella with Requirements Management Tools

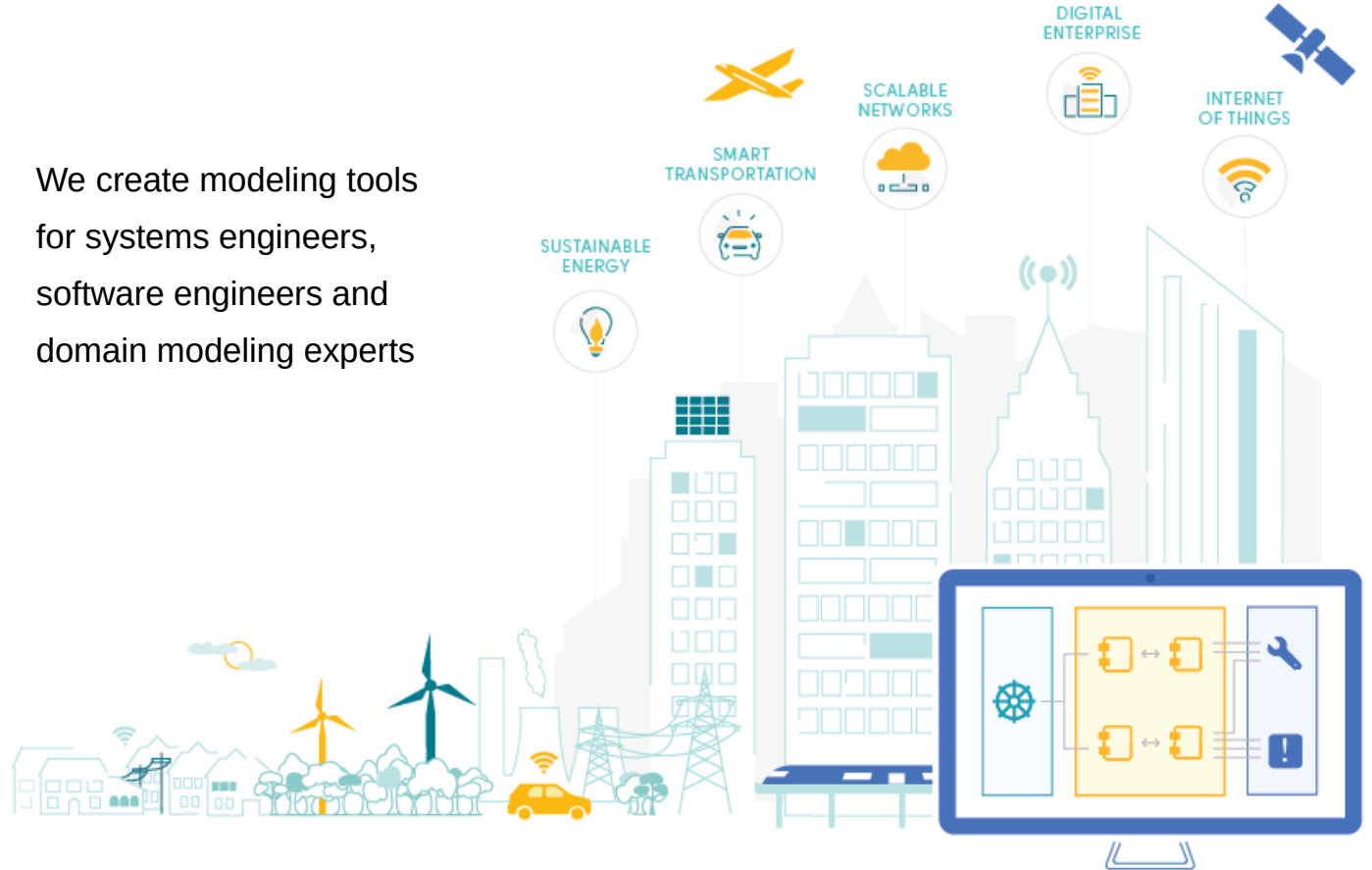
2024-09-26

Laurent DELAIGUE

Obeo | Visual Tools for Designing Innovation



We create modeling tools for systems engineers, software engineers and domain modeling experts



Agenda

Problem Approach

Our Proposition : Publication for Capella

Features

Upcoming Features

Planned Features

Roadmap

Conclusion

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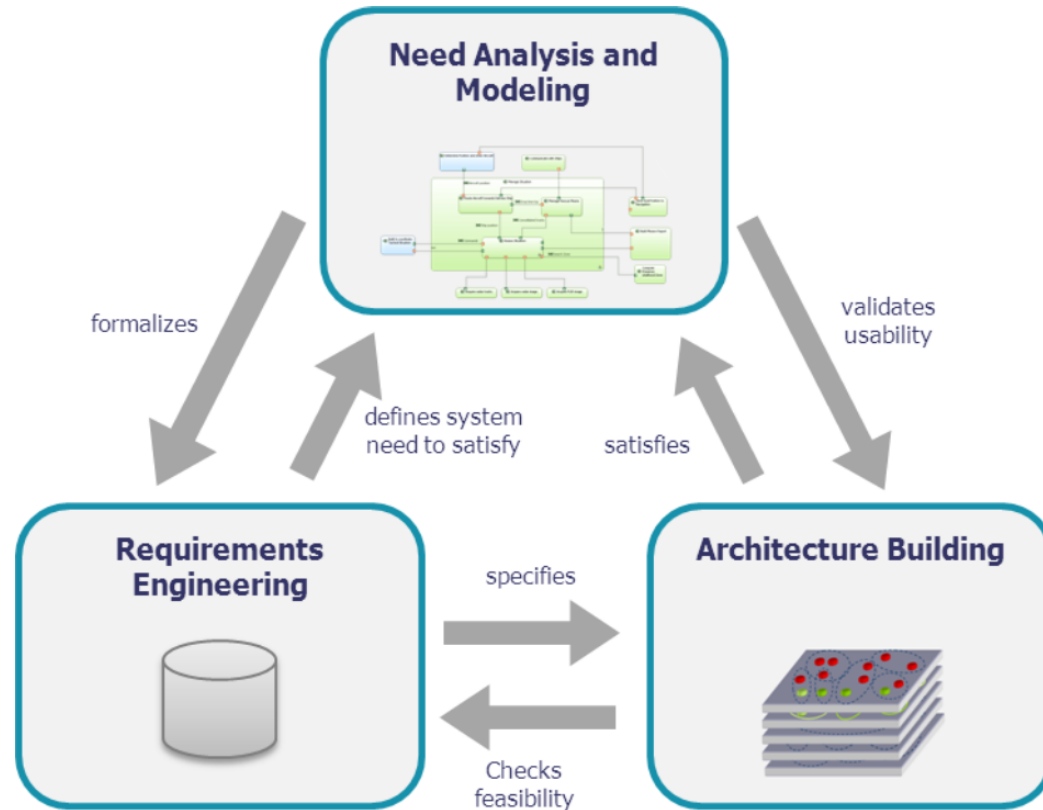
Planned Features

Roadmap

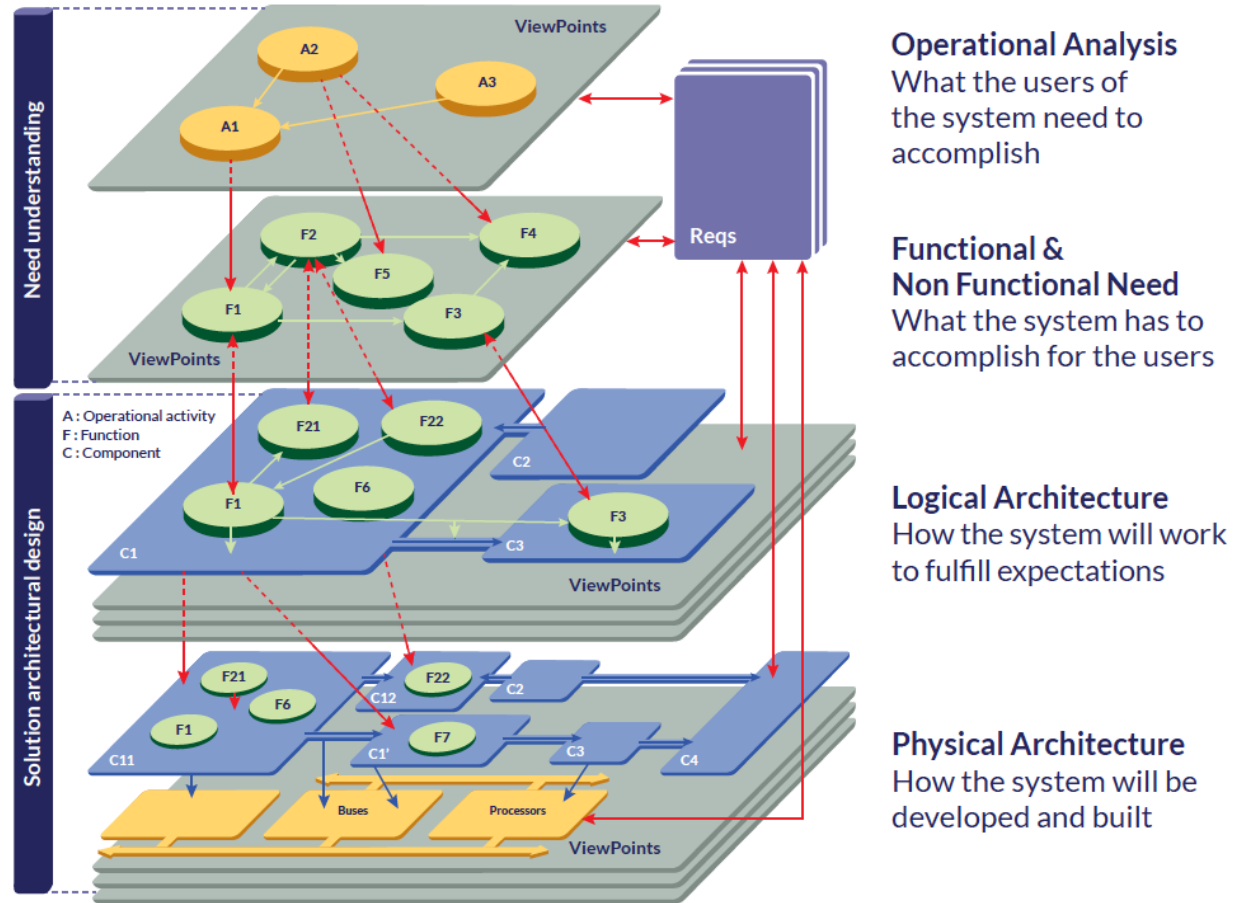
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Problem Approach

Arcadia promotes a viewpoint-driven approach (as described in [ISO/IEC 42010](#)) and emphasizes a clear distinction between need and solution.

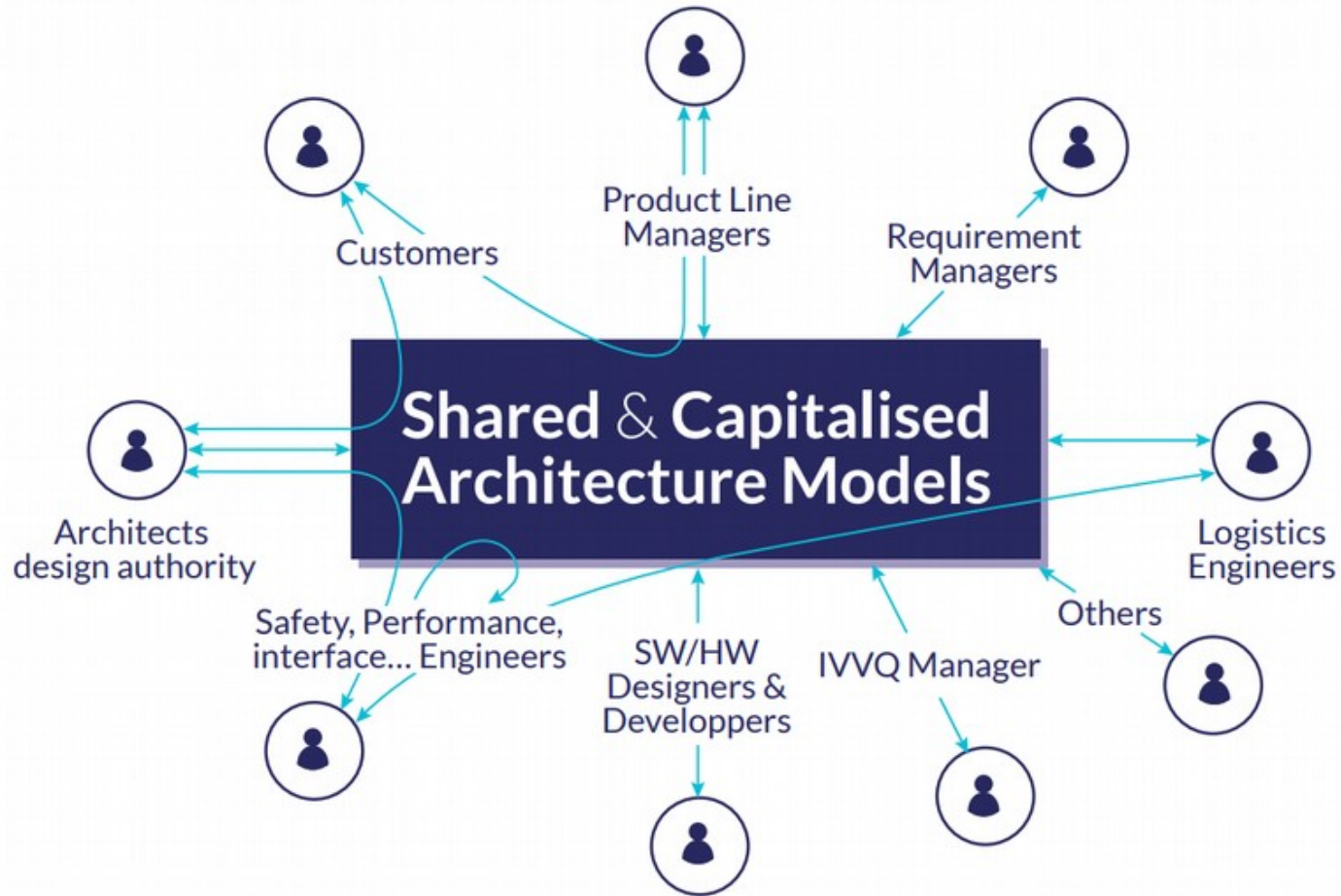


Problem Approach



Source: <https://mbse-capella.org/arcadia.html>

Problem Approach



Challenges

- **How do System Engineers easily trace their model concepts with incoming requirements?**
- **How do they share models and traceability data with different stakeholders?**
- **How do they verify the coverage of the requirements? The coverage of the Capella model?**
- **Can they go beyond Requirements and address more concerns, like V&V for instance?**

- **Open-Source Capella Requirements add-on**
 - Based on ReqIF file format imports.
 - Traceability information only available in Capella.
- **Ad-Hoc Integration with Specific Requirements Management Tools**
 - These often imply exposing Capella elements as first-class objects in the Requirements Repository.
 - But third-party repositories are not made to display or edit Capella concepts.
 - We have heavily invested on this approach with **SMW**.
 - ✓ But the scope of SMW goes far beyond than just integrating with Requirements.

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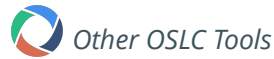
Publication for Capella

- **We want to propose an alternative approach**
 - That doesn't suffer from Data Duplication
 - That scales with the number of requirements, the complexity of models, and the number of stakeholders
 - And mostly, that is easy to use!

Publication for Capella

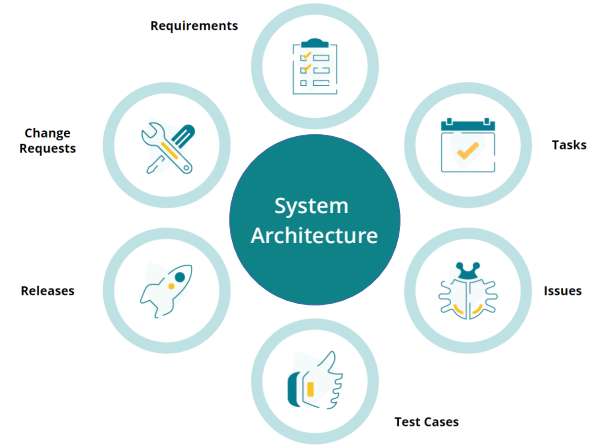
✓ Manage Traceability

Systems engineers, working with Capella, can collaborate with other engineers working with connected ALM or RMS tools



✓ Expose Models

Systems engineers can expose their Capella models by regularly publishing them on a server.



Digital Thread from requirements to architecture



Single and integrated sources of truth



Better communication and collaboration

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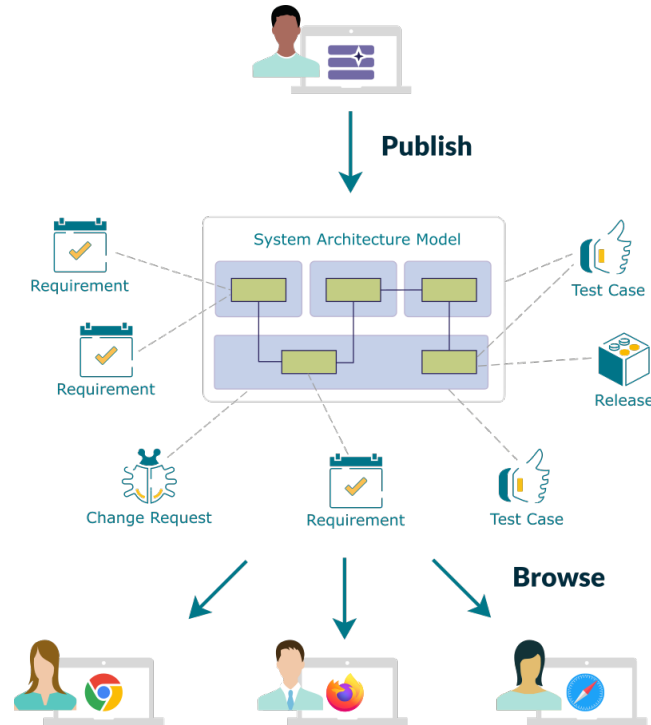
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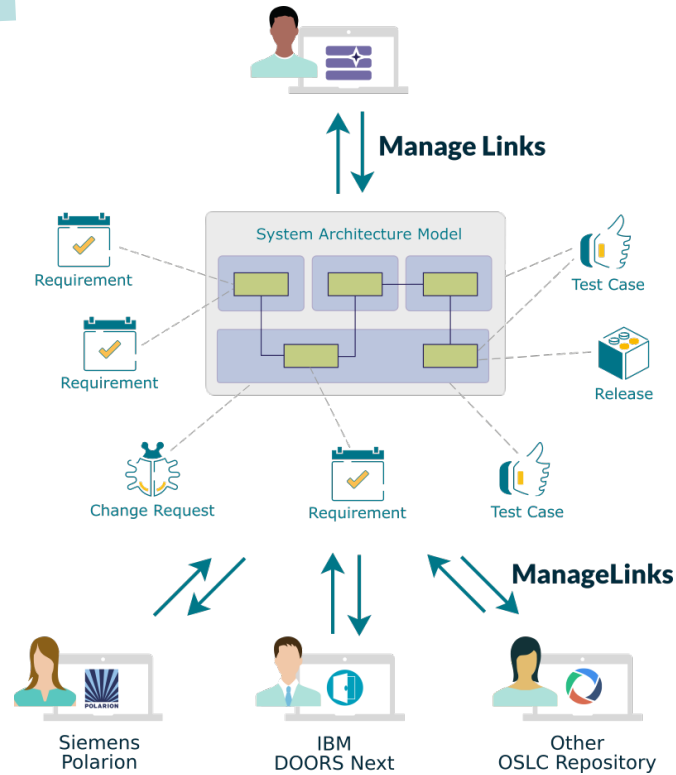


The **model elements**, with all the related **diagrams** and the **linked artifacts**, become **easily navigable** from a web browser to any **authorized** user.

- **Interested Stakeholder, Online**
 - Access Control
 - Browse models online
 - ✓ Diagrams
 - ✓ Capella Objects
 - Simple and Advanced Search
 - Model History

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Create and manage **synchronized traceability links** between architecture elements and artifacts such as **requirements, test cases, releases, change requests, etc...**

Demo 2

- **System Engineer in Capella**

- Drag & drop
- Palette tools
- Different link types
- Publish Model
- Update from online changes

- **Requirements Engineer in 3rd-party Tool**

- Create/Delete OSLC link

- **Authorized Stakeholder online**

- Create/Delete OSLC link

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- **Online**

- No dedicated tooling yet in Publication for Capella
- Specific Tooling in third-party repositories
 - Polarion Live Docs
 - IBM Jazz Team Server Reporting capabilities

- **System Engineer in Capella**

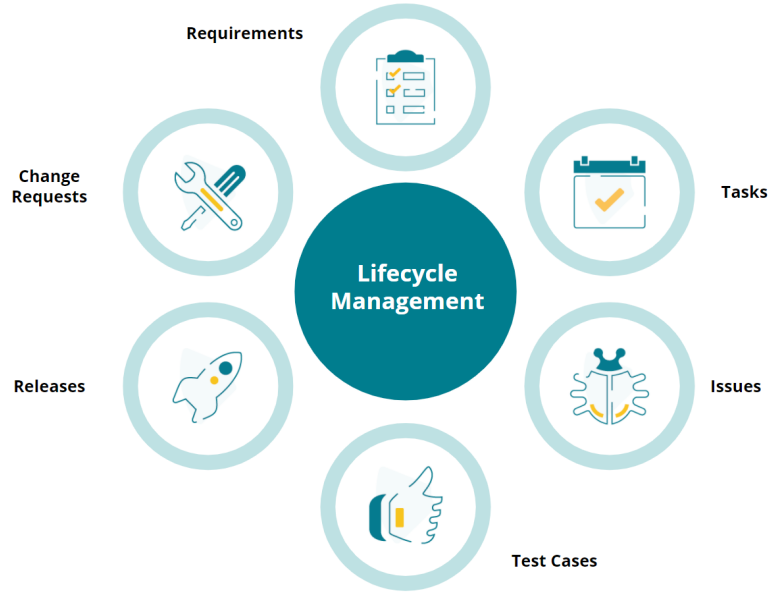
- No dedicated tooling yet in Publication for Capella
- Use **Python for Capella** to extract or manipulate model data, including traceability
- Use **M2Doc** to produce MS Word reports

- **System Engineer in Capella**
 - Configure Reporting with Python for Capella
 - Generate Report

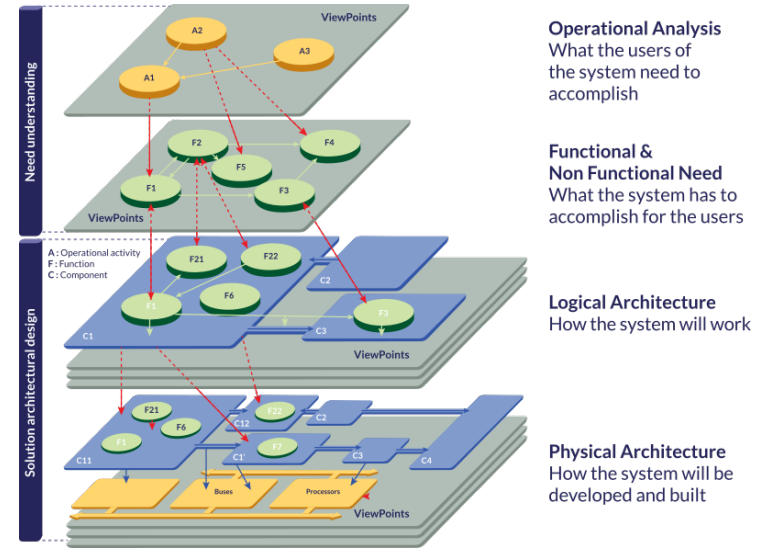
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Features



Expose Models Online



Not limited to Requirements:

- ✓ V&V – Links to Test Cases;
- ✓ Project Management – Links to Releases, Change Requests...

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On-Premise

The server is deployed on your own infrastructure

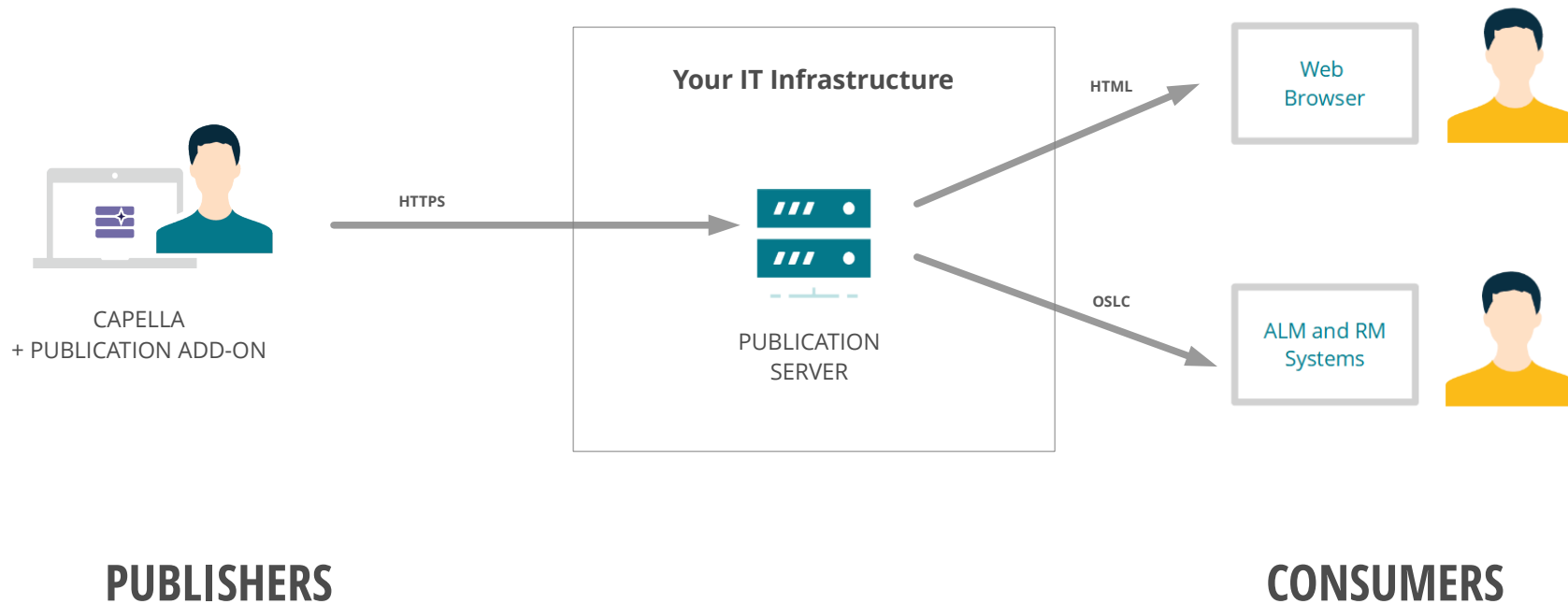


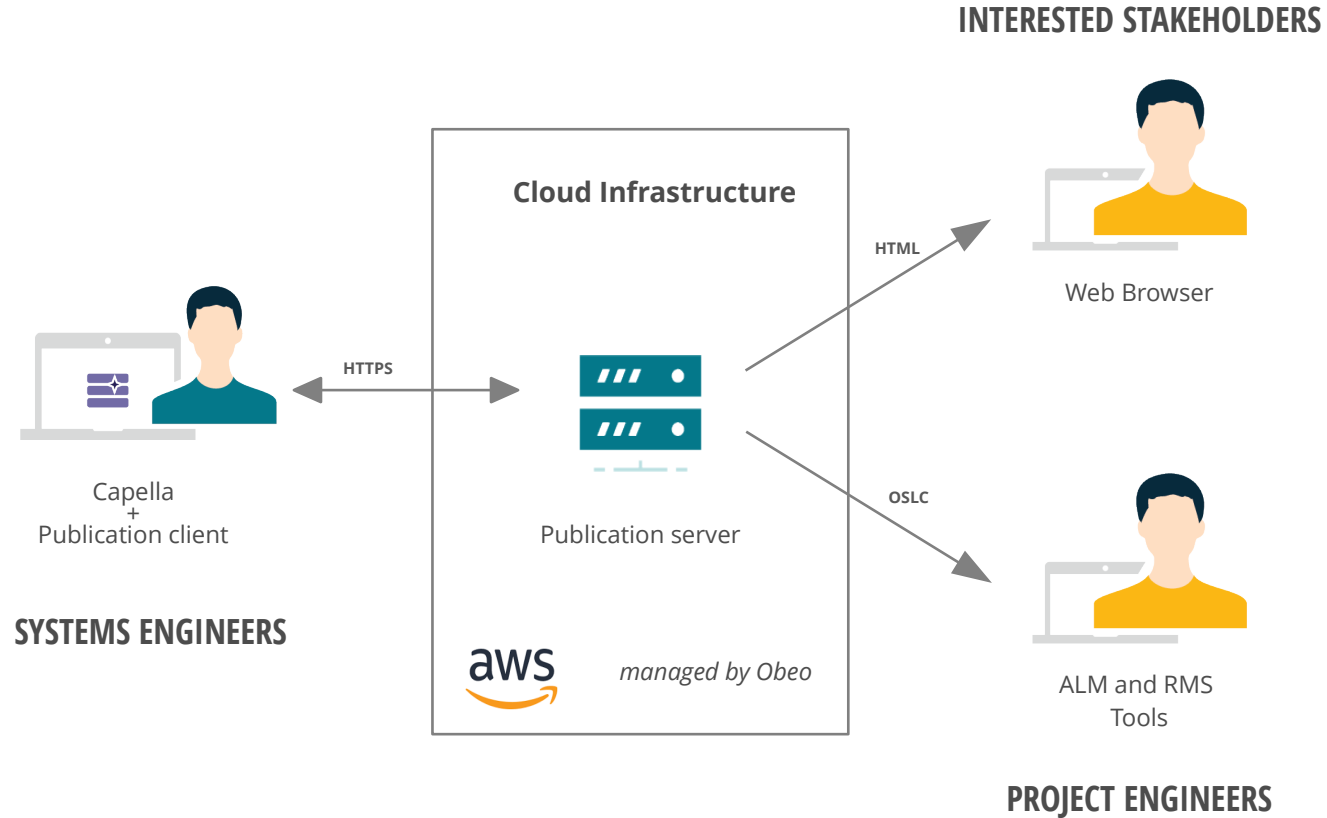
Cloud

The server is installed on a Cloud infrastructure managed by Obeo

Features

On-Premises | Deployed on your own infrastructure





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Upcoming Features

- Support for **OpenID Connect**
 - Improved Security
 - Single Sign-On

Log in to get started

Username *

Password *

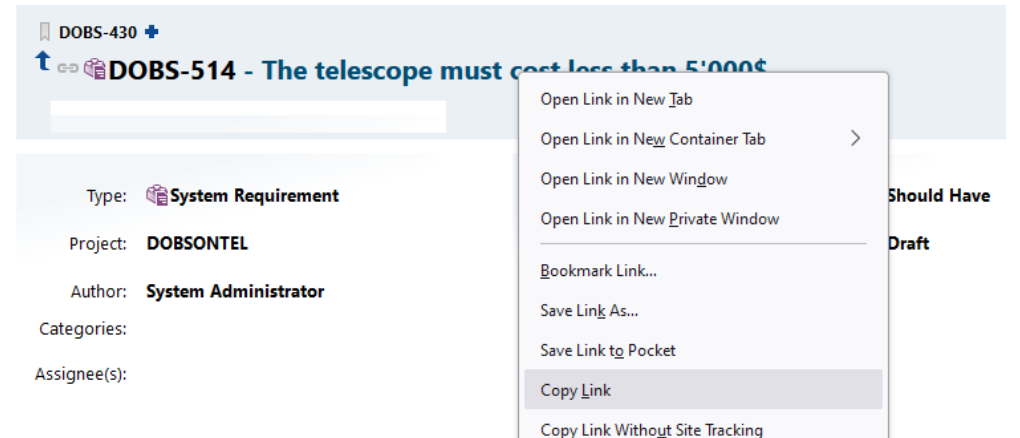
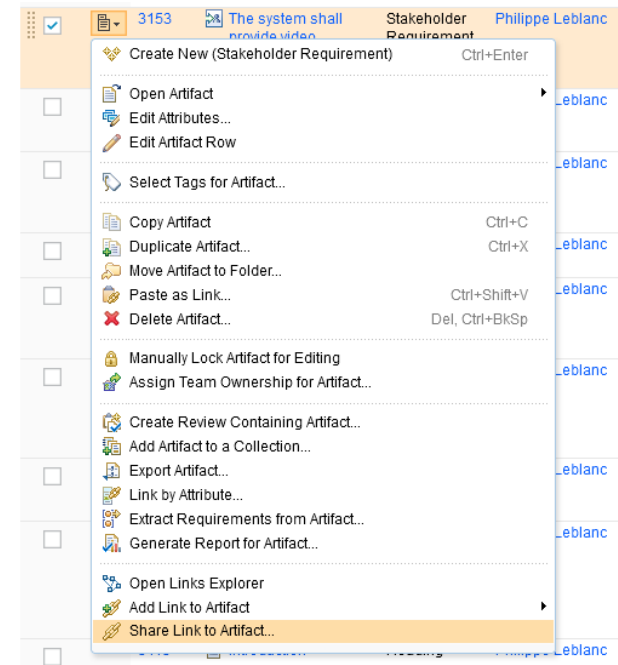
LOGIN WITH PASSWORD

or

LOG IN WITH OAUTH

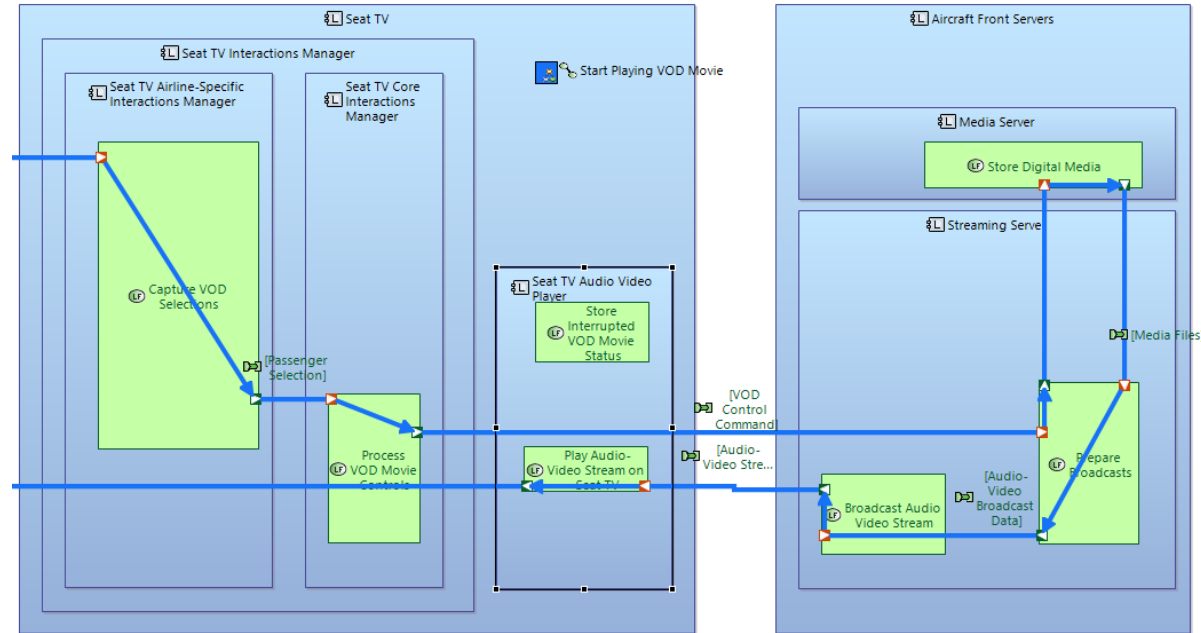
Upcoming Features

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- **Create Links using Copy/Paste**
 - Makes it possible to create links on exchanges easily
 - Improves user experience in Cloud environments



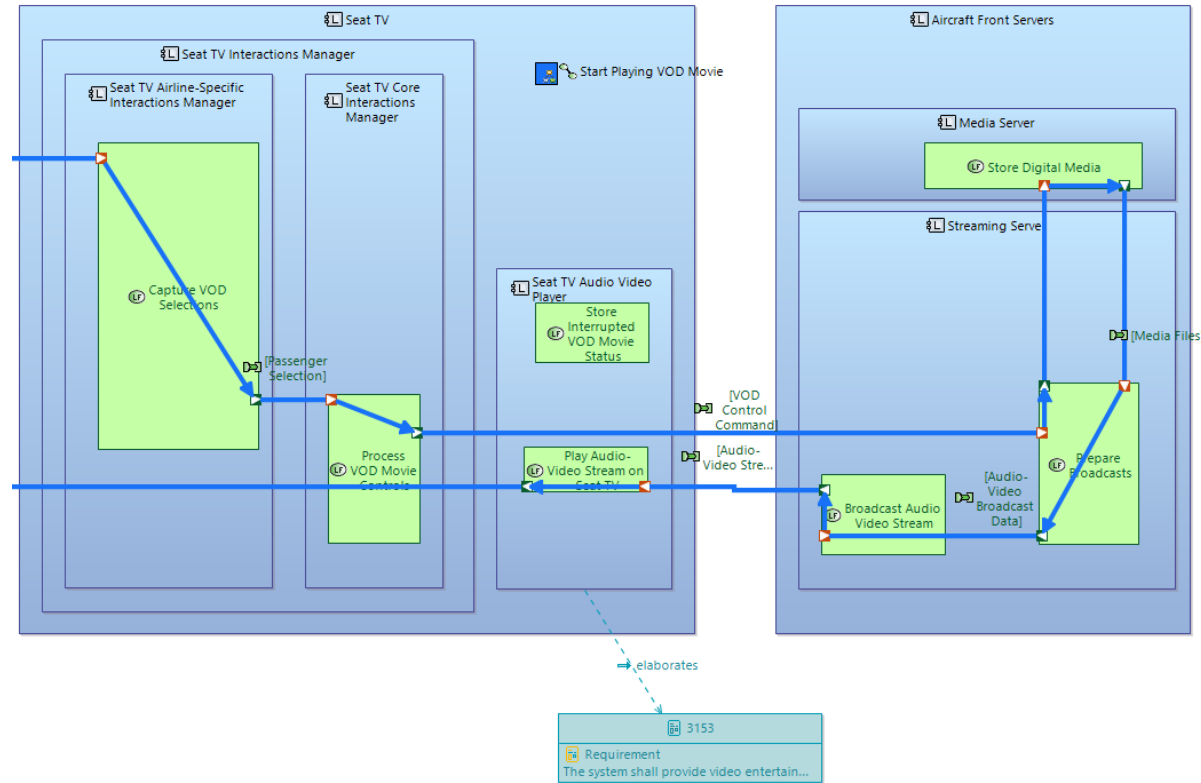
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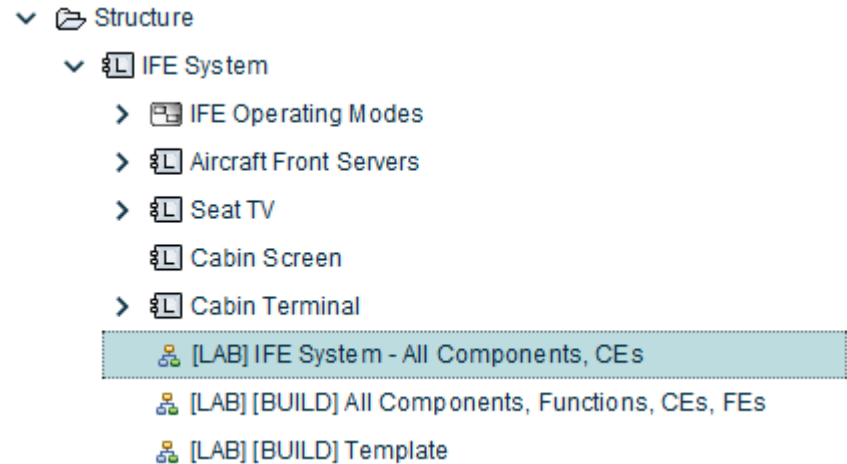
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- **Miscellaneous Improvements**
 - **Diagrams in model tree** like in Capella



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 - **Better Properties**

Cabin Crew

Properties

Name ?

Cabin Crew

Summary ?

Summary

Is Abstract ?

Is Human ?

Is Actor ?

Generalized Components ?

None

Implemented Interfaces ?

None

Used Int

None

the list of functions allocated to this block
[source: Capella study]

Allocated Functions ?

Ⓛ Command Airline-Imposed Video Broadcast

Ⓛ Launch Pre-Flight Tests and Analyze Results

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- **And more!**
 - Including new options on OSLC Associations

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The development roadmap is driven by our customer's feedback.

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- OSLC Preview in the web UI

The screenshot displays the 'In-Flight Systems' web application interface. On the left, an 'Explorer' pane shows a hierarchical tree of system components, with 'Seat TV Audio Video Player' selected. The main content area shows the details for this component, including its logical component ID and a breadcrumb trail. Below this, there are navigation buttons for 'INCOMING', 'CURRENT', and 'OUTGOING', along with an 'OSLC LINKS' button. The 'OSLC Links' section is expanded, showing a requirement: '3153: The system shall provide video entertainment services.' A mouse cursor is pointing at this requirement. The user's name 'Idelaigue' is visible in the top right corner.

Planned Features

- OSLC Preview in the web UI
- **Improve the User Experience when Publishing from Capella**
 - Groundwork to prepare live connection between Capella and Publication server
 - Later, will make it possible to notify System Engineers when links are created/deleted online, or when comments or questions are asked on some diagram online.

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- **Broaden the Compatibility with more officially supported third-party repositories**
 - Jira (via Sodus OSLC Connector)
 - JamaConnect
 - CodeBeamer
 - By the way, do you have any in mind?

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Disclaimer:

No commitment

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- **Licensing Model**
- **Version Control**
 - Baselines, branches, ...
 - Comparison of objects or models online
- **Global Configuration Management**
 - Mostly for the IBM Jazz suite
- **Model Review**
 - Discuss about models online
 - Implement review workflows
- **Better Tooling to Analyze and Report on Traceability Links**

Survey



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- Expand the audience of MBSE by exposing your Models online.
- Create and maintain Traceability Links easily, either in Capella or online.
- Extract links for reporting using *Python for Capella* or *M2Doc*.
- On Premises or Cloud Deployment
- Compatible with *Team for Capella*
- Contact Obeo to influence the product's roadmap.

Conclusion

<https://obeosoft.com/p4c>

