



# How to Build, Implement, and Use an Architecture Metamodel

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## Chris Armstrong

President

APG, Inc.

[chris.armstrong@aprocessgroup.com](mailto:chris.armstrong@aprocessgroup.com)

Hosted by:

## Michael Milutis

Director of Marketing

Computer Aid, Inc. (CAI)

[Michael\\_Milutis@compaid.com](mailto:Michael_Milutis@compaid.com)

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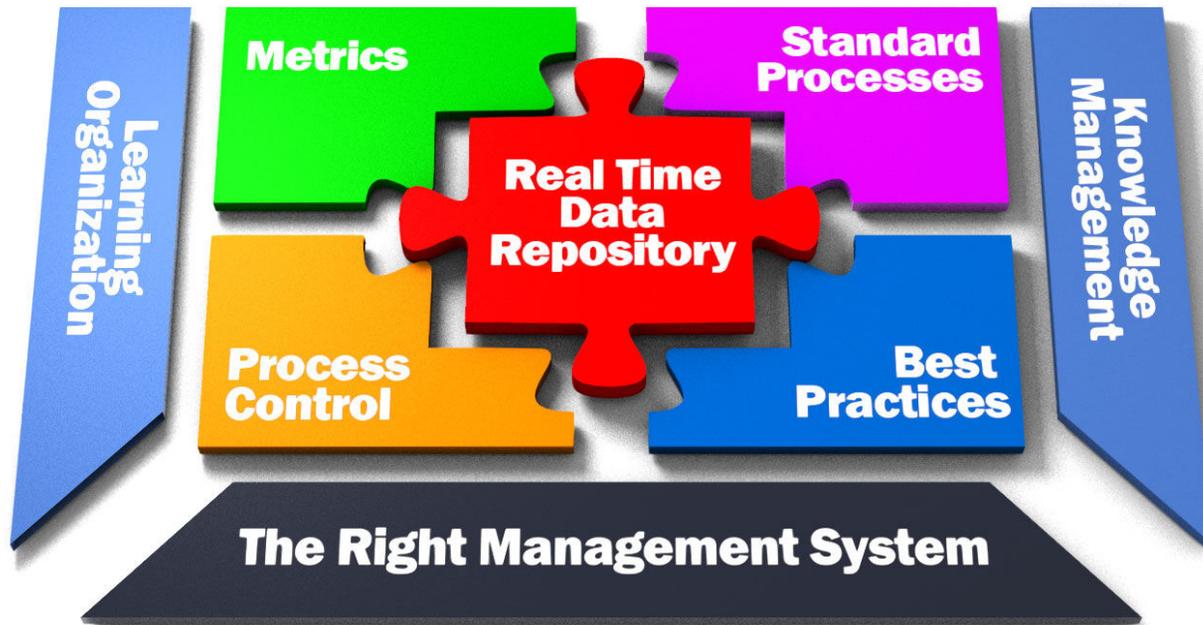
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# How to Build, Implement, and Use an Architecture Metamodel

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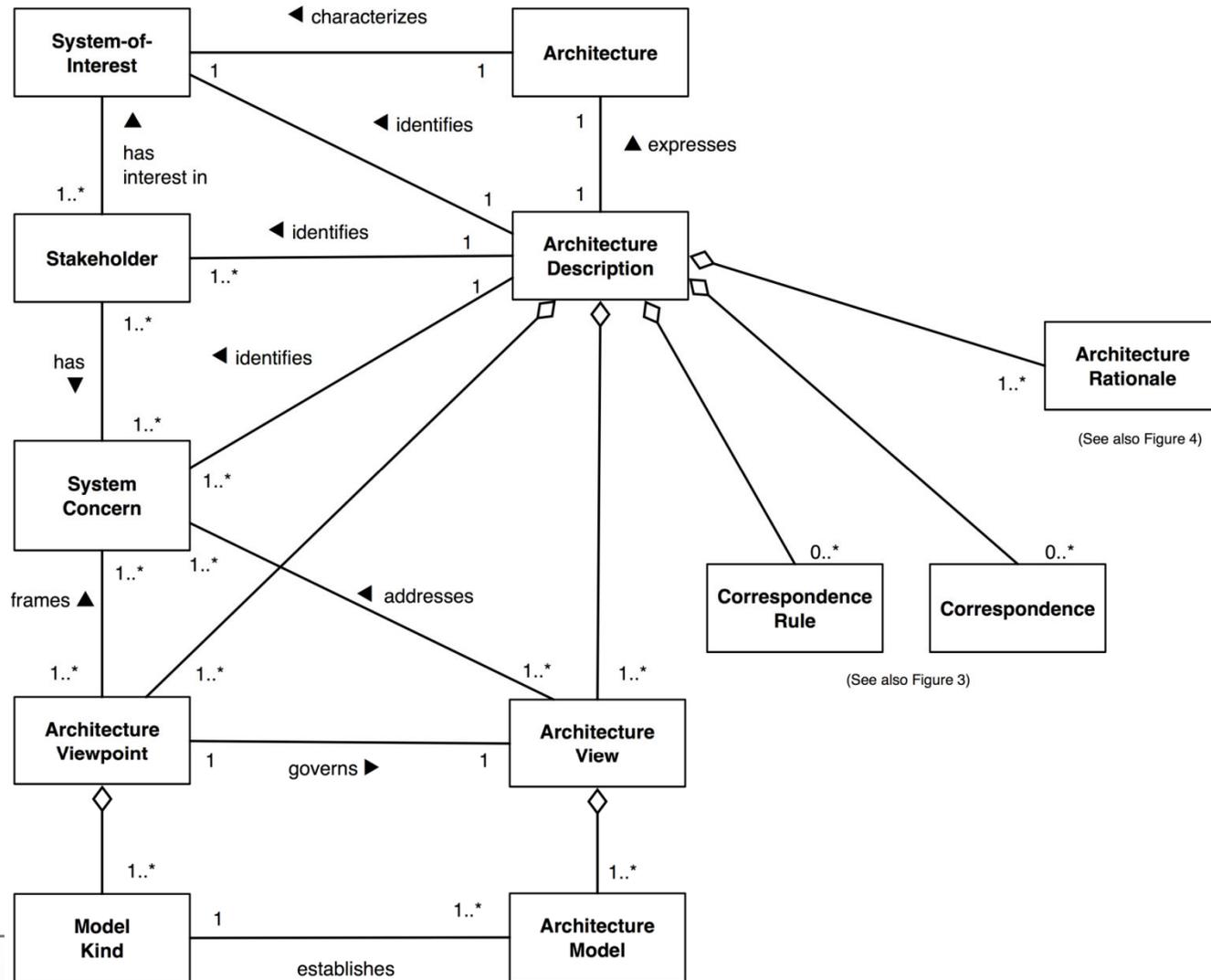
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# Objectives

- Review industry standard for architecture descriptions
  - Stakeholders, concerns, viewpoints, and views
- Introduce method for defining architecture viewpoints based on stakeholder scenarios and concerns
  - Based on Architecture Description UML Profile
- Describe techniques for designing custom metamodel for rendering required architecture views



# Architecture Description Standard



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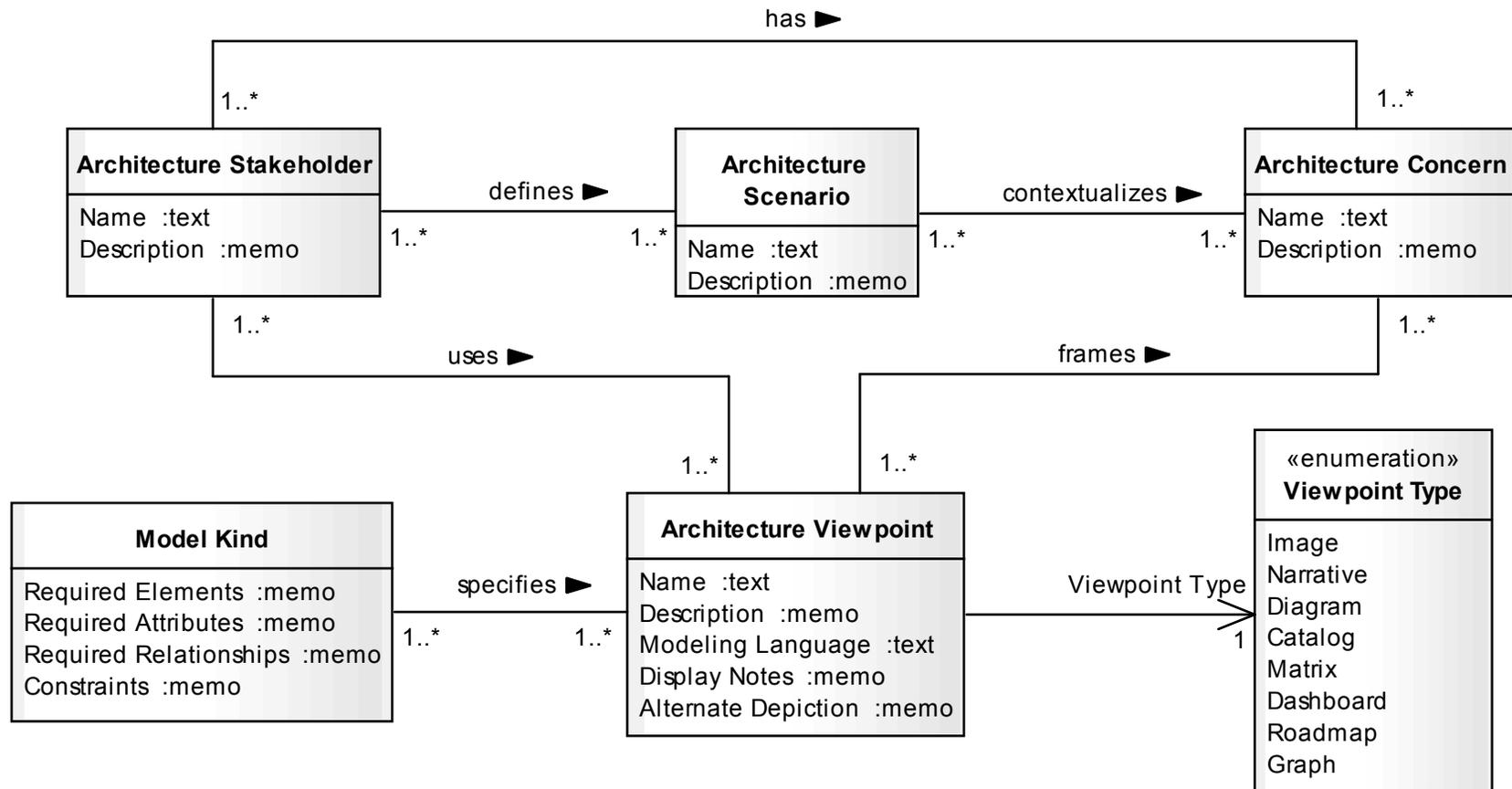
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[ISO/IEC 42010:2011 \(f/k/a IEEE 1471\)](http://www.iso.org/iso/42010)



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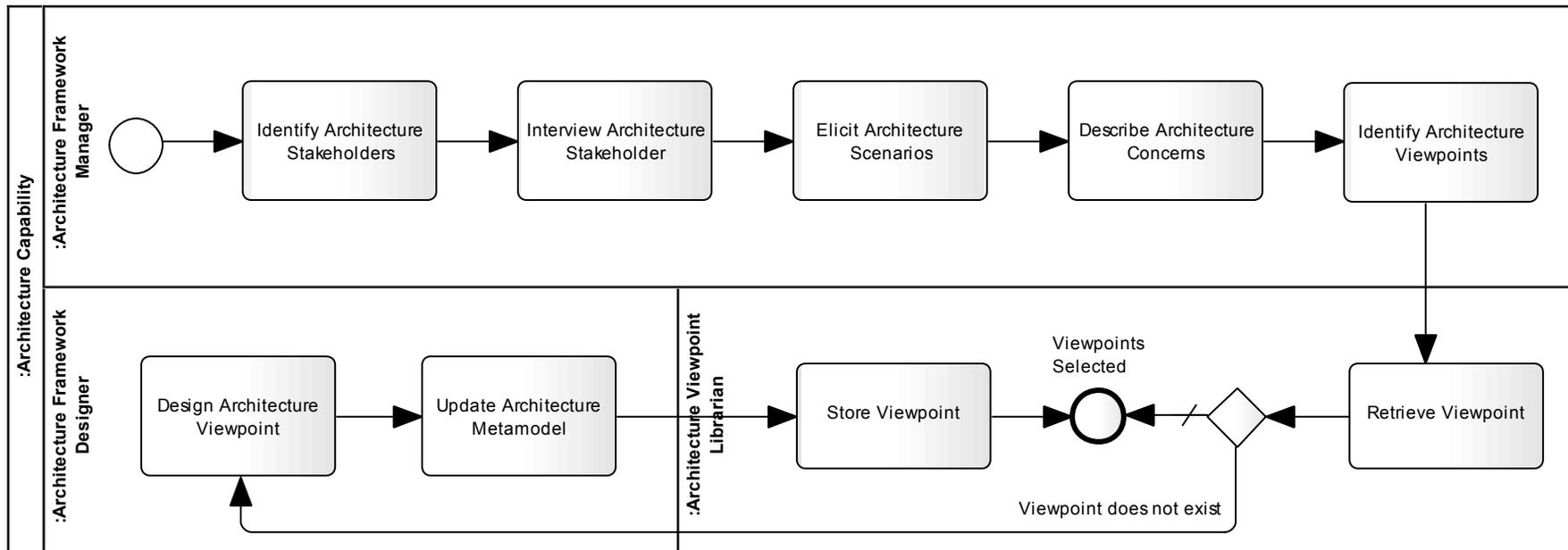
# Refined Viewpoint Metamodel



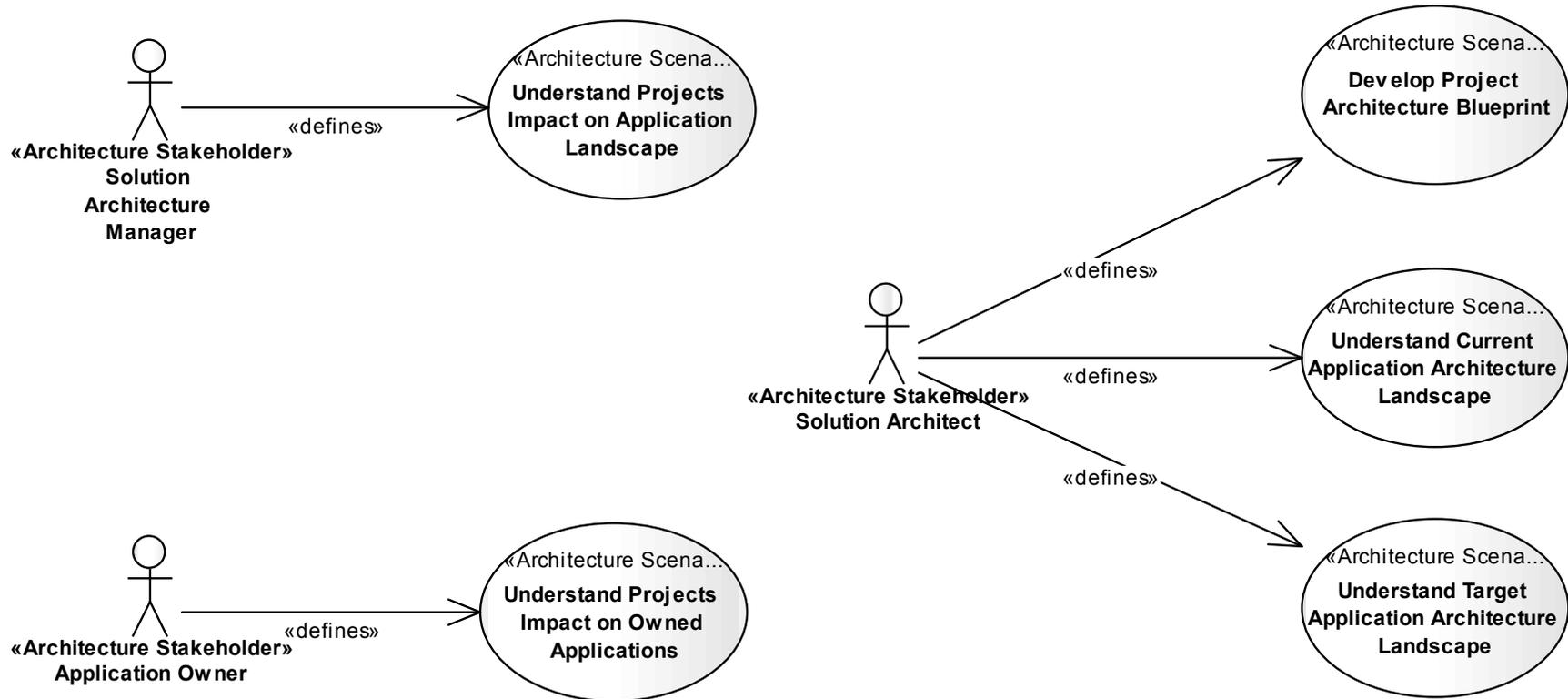
Describes the “Who”, “Why”, “What” and “How” for architecture modeling



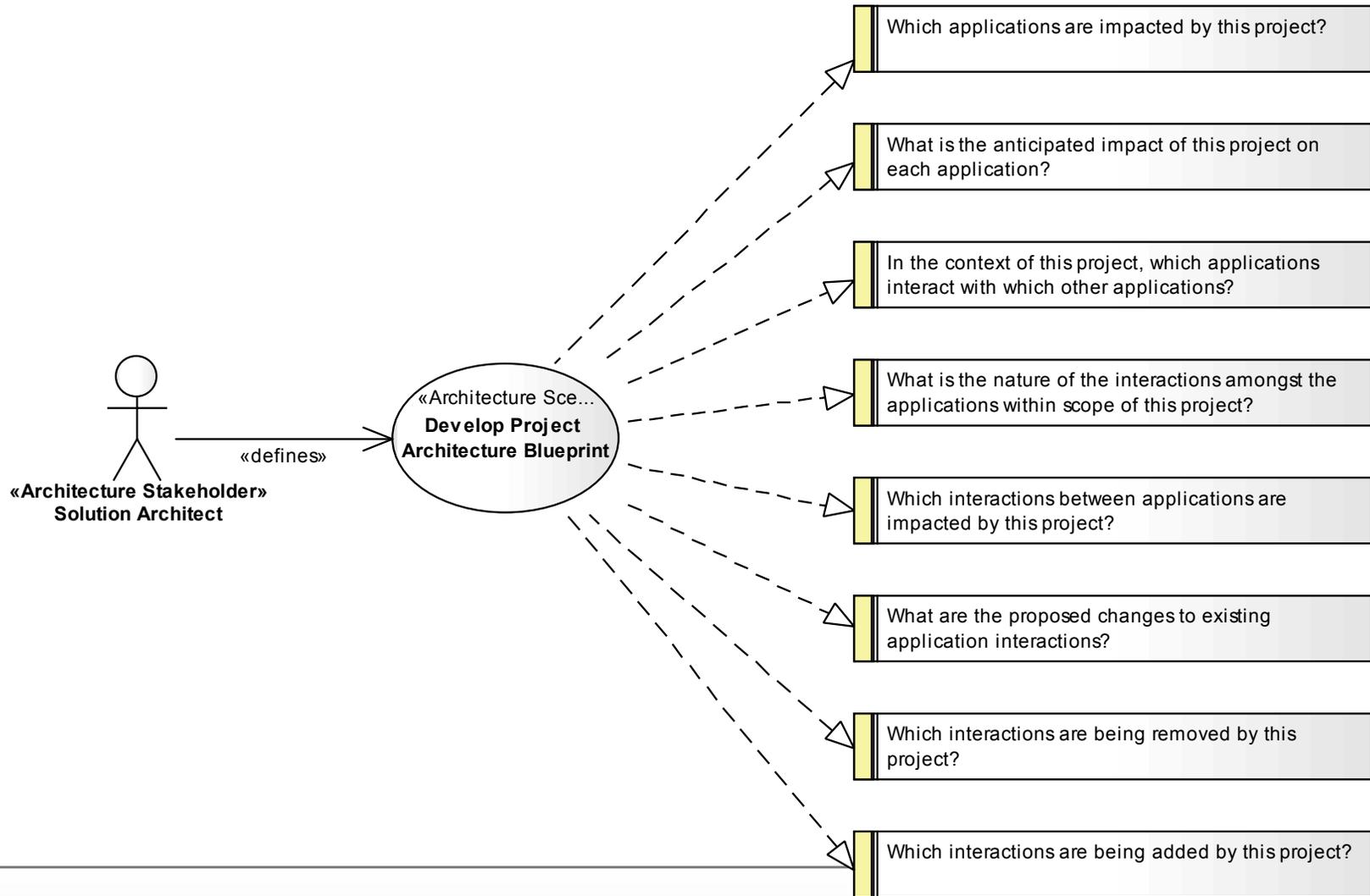
# Gather Modeling Requirements – Workflow



# Describe Stakeholders and Scenarios



# Describe Architecture Concerns



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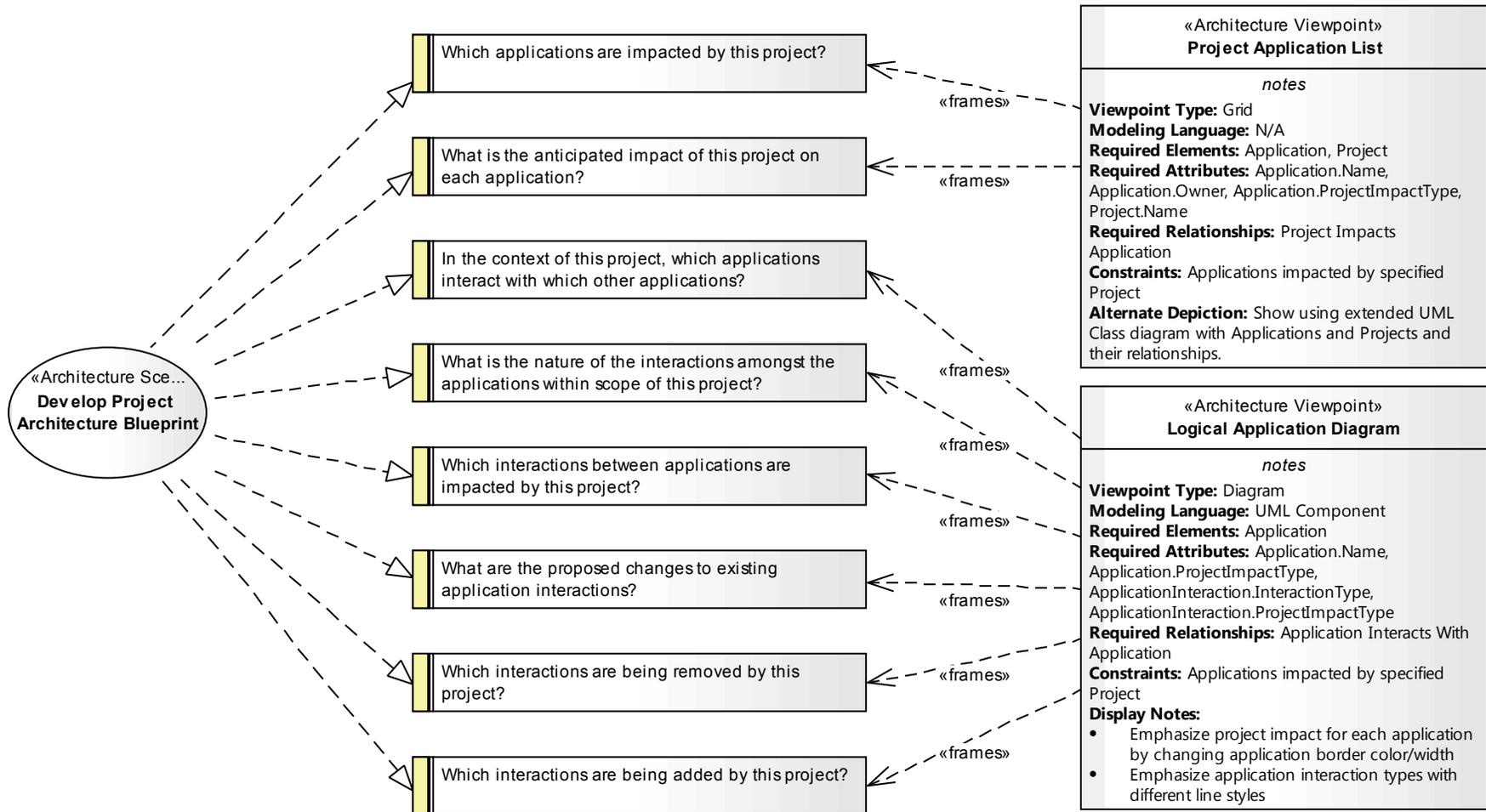
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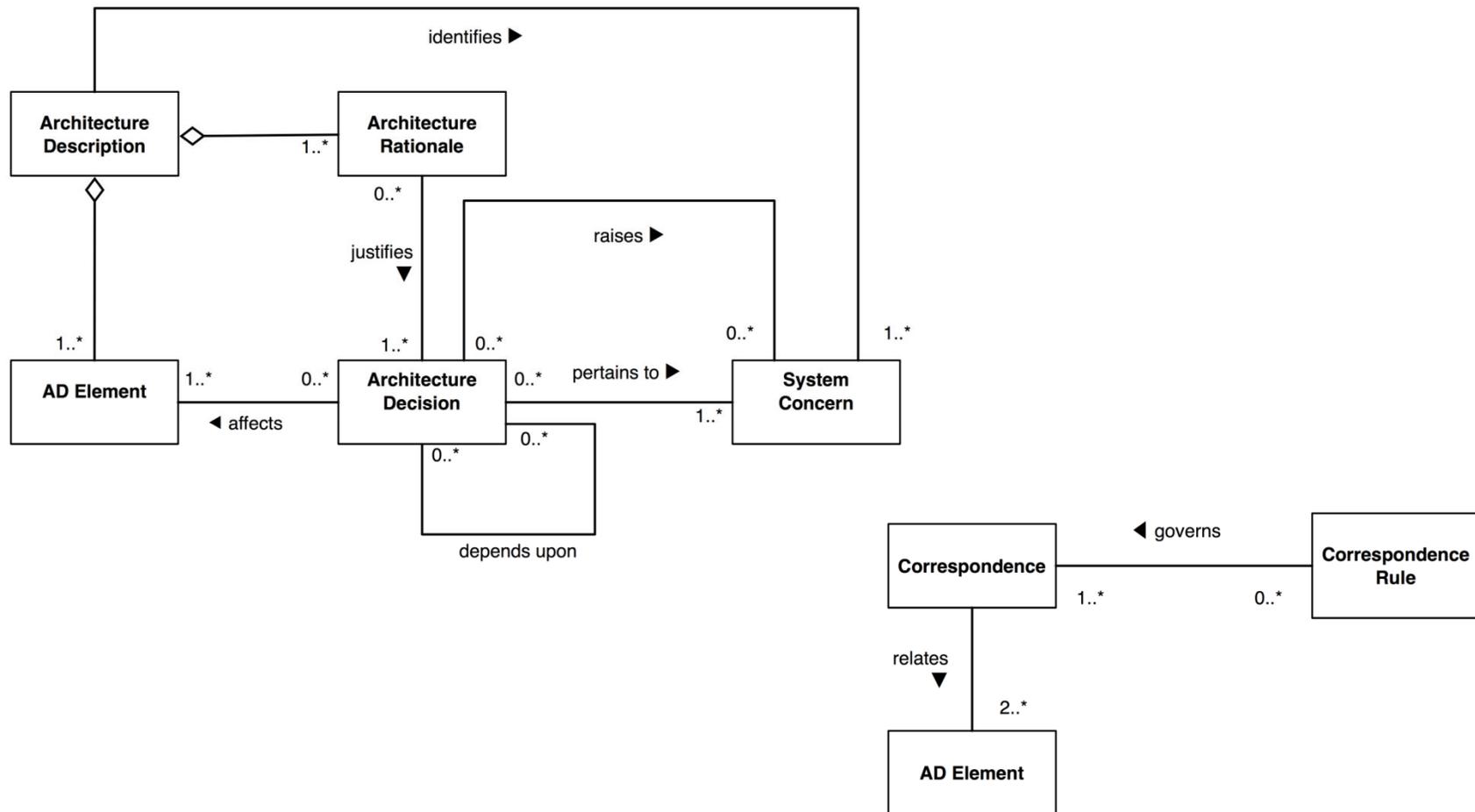


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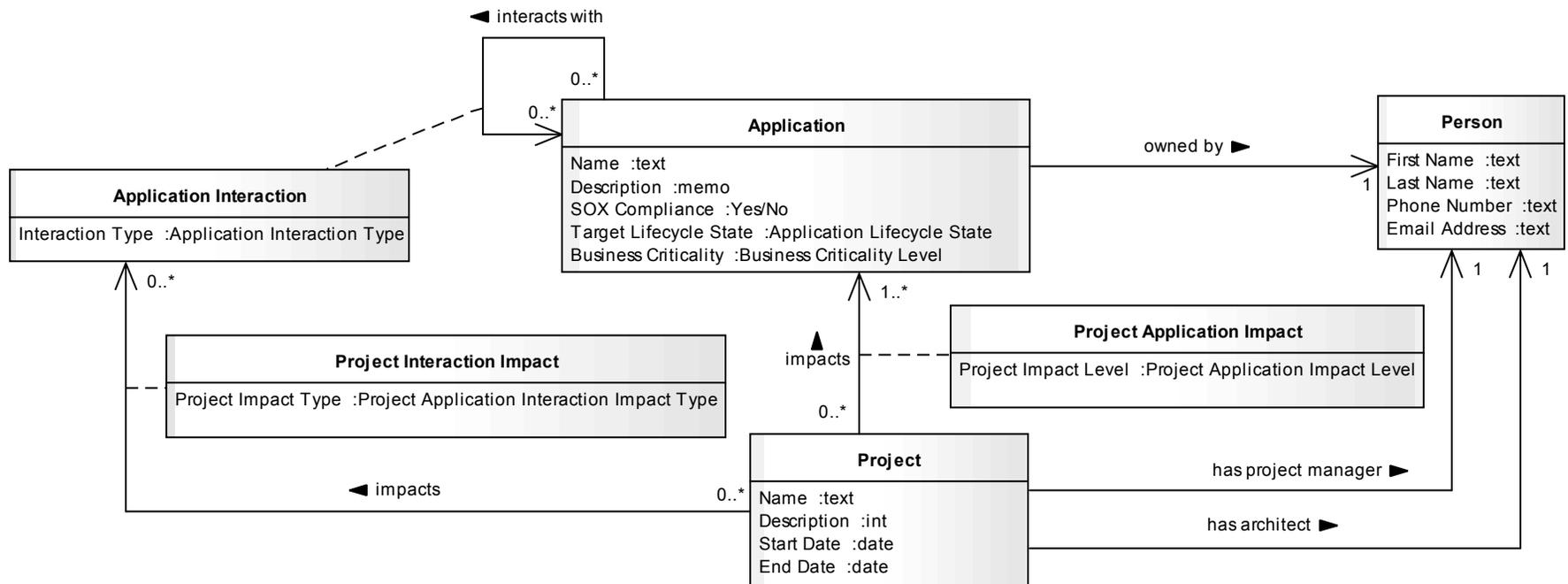
# Identify Architecture Viewpoints



# AD Elements and Correspondences



# Update Architecture Metamodel



«enumeration»  
**Application Interaction Type**

Batch
Real-Time

«enumeration»  
**Project Application Impact Level**

No Impact
Validate Impact
Verify Impact
Impacted

«enumeration»  
**Project Interaction Impact Type**

Impacted
Added
Removed
Not Impacted

«enumeration»  
**Application Lifecycle State**

Proposed
Provisional
Standard
Contained
Retired

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**Business Criticality Level**

Safety-critical
Mission-critical
Essential
Regular
Non-critical



# Project Application Impact Diagram



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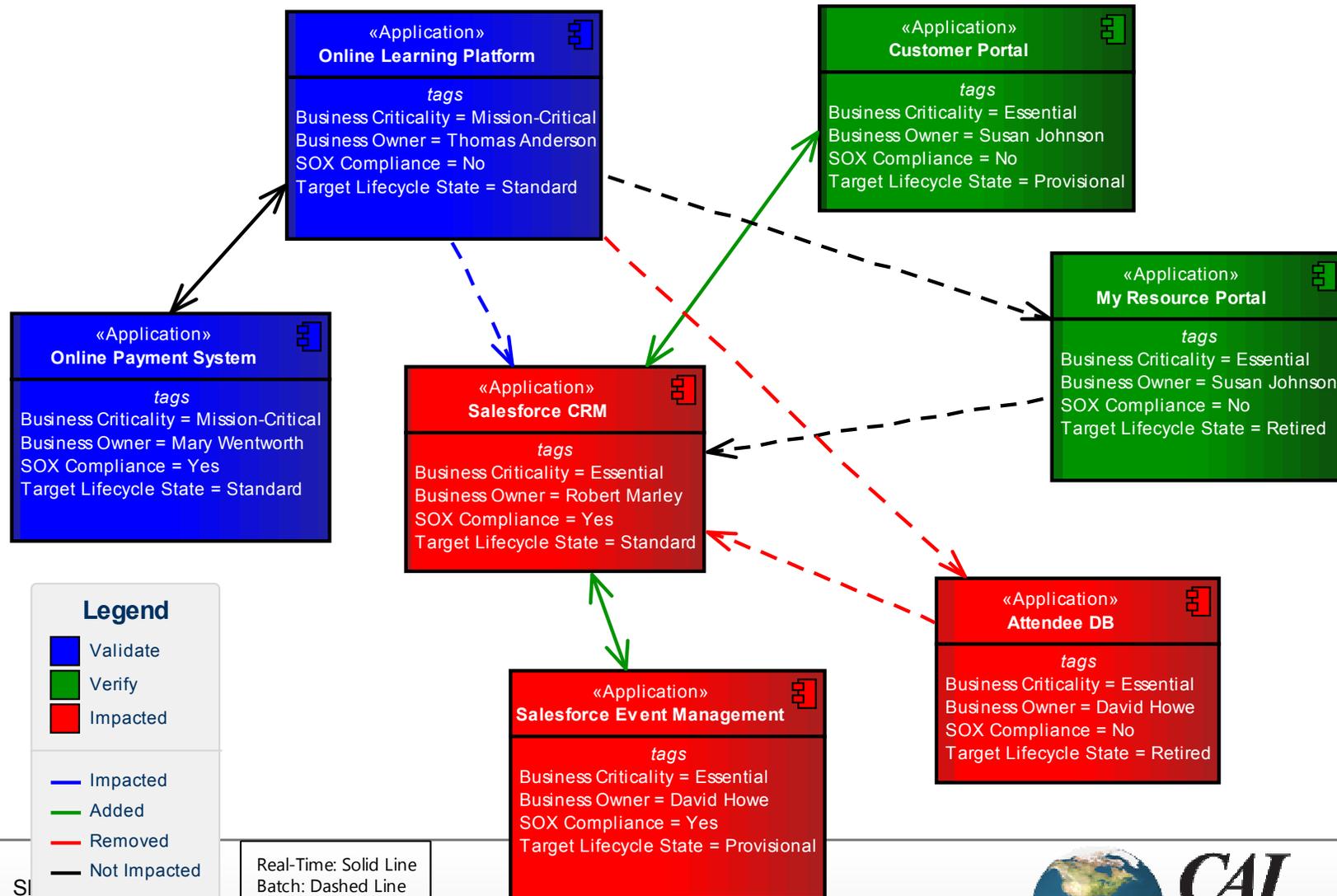
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# Logical Application Diagram



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# Conclusion

- Exploit existing architecture standards for determining how to model (and how much) for what purpose
- Use conventional modeling techniques for understanding stakeholder concerns and designing architecture viewpoints
  - And for designing custom metamodel
- Implement custom metamodel using UML profiles
  - Basis for consistent semantics and tool usage





# Questions?



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