



An Analysis of the SOA Standard Models and Architectures

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Agenda

- Goals
- Types of standards positioned
- Overview of and Guidance on Standards
- Positioning of standards
- SOA and SOA Governance Core concepts
- Conclusion



Goals: SOA Harmonization: So many questions

Problem – There are so many standards on SOA. What are they all for and which ones do I use?

- Questions we were all being asked:
 - What standards are out there?
 - How are these standards meant to be used?
 - How do these specifications relate to each other?
 - Are these standards in conflict?
 - Which ones are best for my situation?
 - Should I wait till the dust settles?

Solution – A joint whitepaper answering these questions

- Goal: Readers of these standards should get the same fundamental understanding of SOA ... Regardless of which standard they start with.

Goals: SOA Harmonization: Answering the questions

- The Open Group, OASIS, and OMG Joint whitepaper
 - The Open Group SOA WorkGroup
 - OASIS SOA Reference Model TC
 - OMG SoaML, SOA Governance RFP
- Scope: Architectural Standards:
 - Reference Models,
 - Reference Architectures
 - Ontologies
 - Governance
 - Maturity Models
 - Modelling Languages
- Out of Scope: SOA implementation, infrastructure, Business Architecture, information modelling standards





Goals of this discussion paper

- Convey the same fundamental concept of SOA regardless of starting point
- Help navigate the myriad of overlapping standards
- Differentiate and select appropriate specifications to meet needs
- Outline the agreement on core SOA and SOA governance concepts
- Establish collaboration between the standards bodies
- Encourage consistency across the standards addressing the various aspects of SOA
- Establish relative positioning evolve standards to reduce overlaps and gaps



Some non-goals, ideas for future collaboration

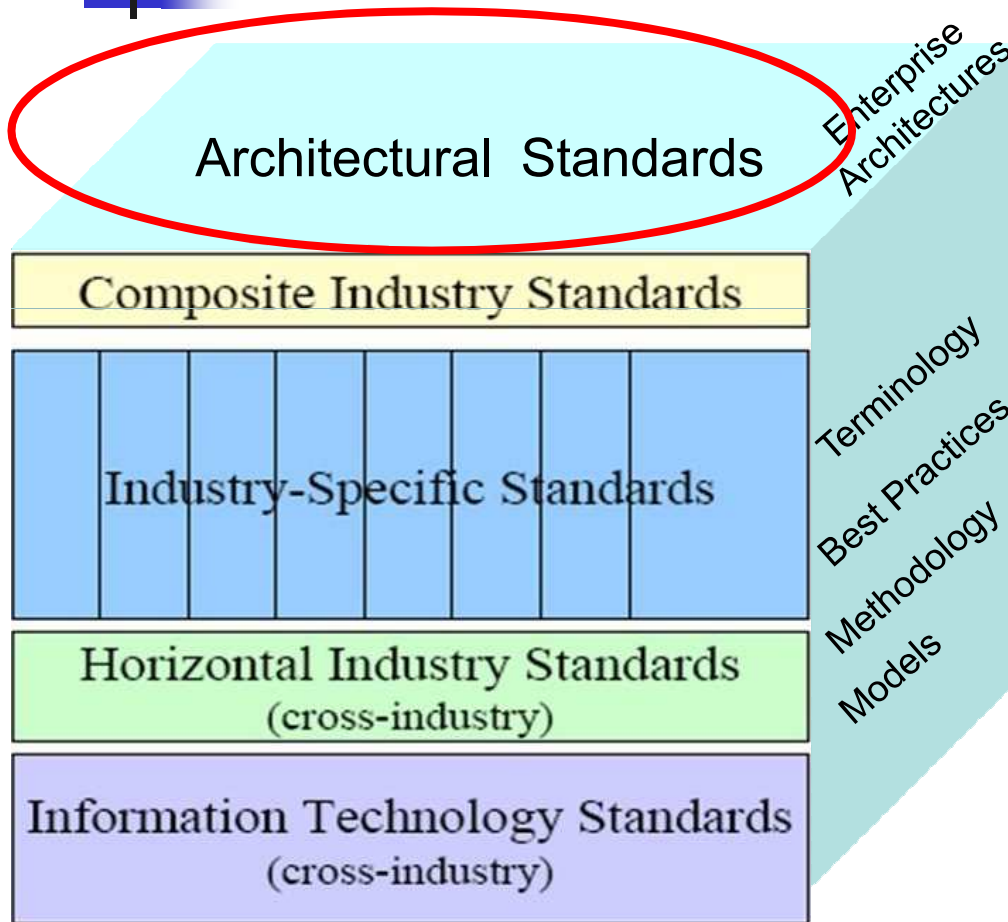
- Complete picture of the SOA open standards landscape
 - Limited to core SOA concepts and architecture being proposed by these open standards organizations
- An ontology of architectures
 - The term architecture is used informally, consistent with the referenced standards
- Define SOA, its value proposition, or usage scenarios
 - The relative positioning of a set of standards offered by the three organizations
- The domain of applicability of SOA for business and/or IT
 - How the referenced standards achieve SOA goals, whatever they are
- Resolution or actions to resolve overlaps and inconsistencies between the standards
 - Collaboration to evolve standards that may be more aligned and complimentary
- information as a service, data-driven approaches to service identification, or business processes for identifying, implementing or using services
 - Topics for follow-on work
- Issues or alignment, integration and interchange opportunities around how the standards are expressed
 - Topics for follow-on work



Nomenclature

- **Reference Models** – an abstract framework for understanding significant relationships among the entities of some environment
- **Ontologies** – an explicit formal specification of the terms in the domain and relations among them
- **Reference Architectures** – models the abstract architectural elements in the domain independent of the technologies, protocols, and products that are used to implement the domain, providing a template, based on the generalization of a set of past successful solutions.
- **Maturity Models** – Represents a means of and scale for both evaluating and assessing the current state of maturity
- **Modeling Languages** – Include a metamodel and notation that may be used to provide a standard means of representing artifacts in tools and in communicating information between tools and automated environments
- **Concrete/Solution Architectures** – An instantiation of a reference architecture

Our Target: Architectural Standards



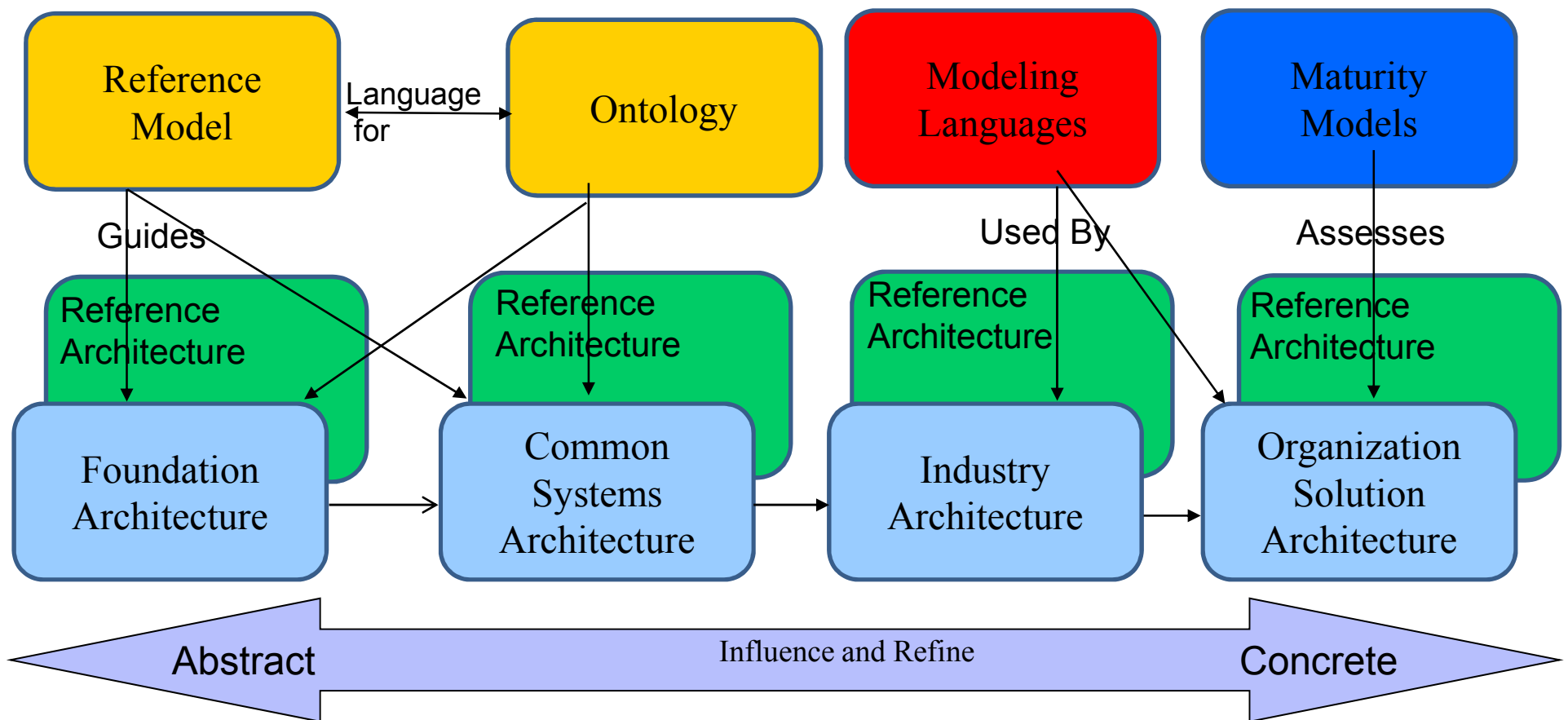
Architectural standards:

- Address customer architecture and deployment considerations
- Directed toward IT architects
- Oriented toward consistency rather than interoperability

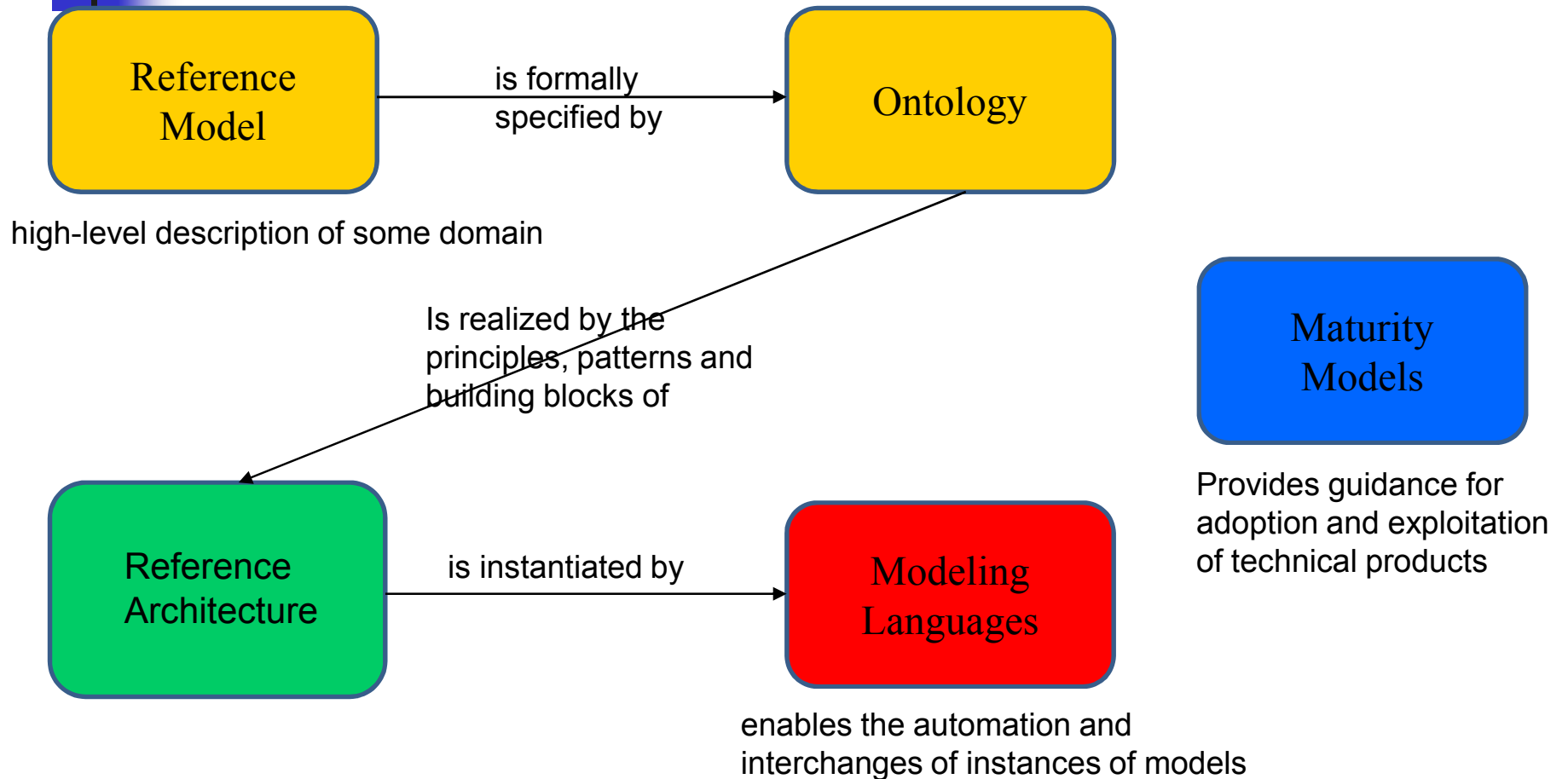
Infrastructure Standards:

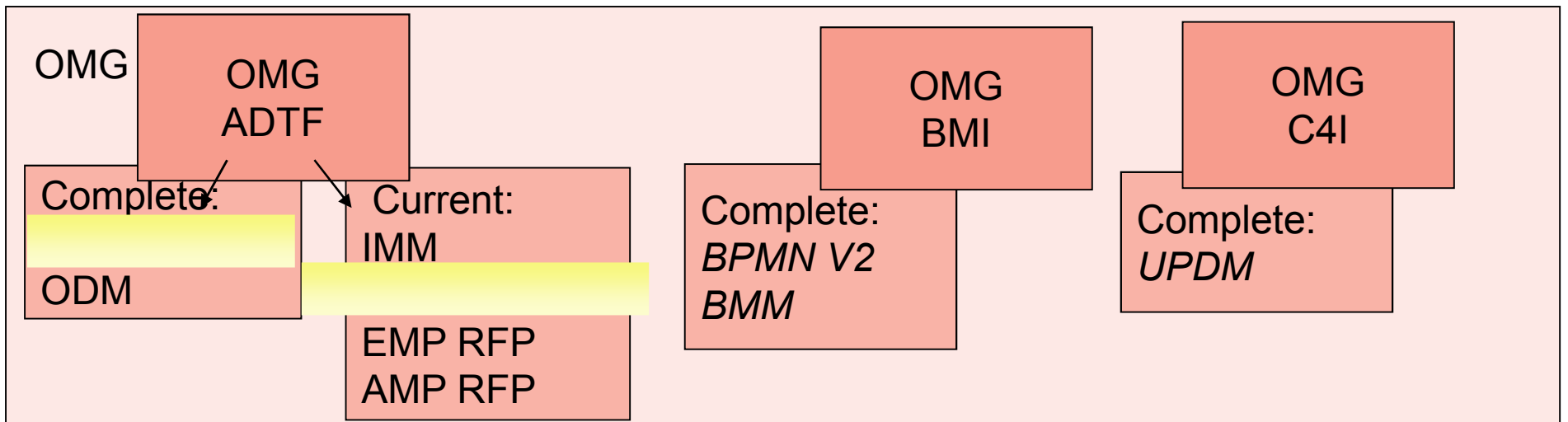
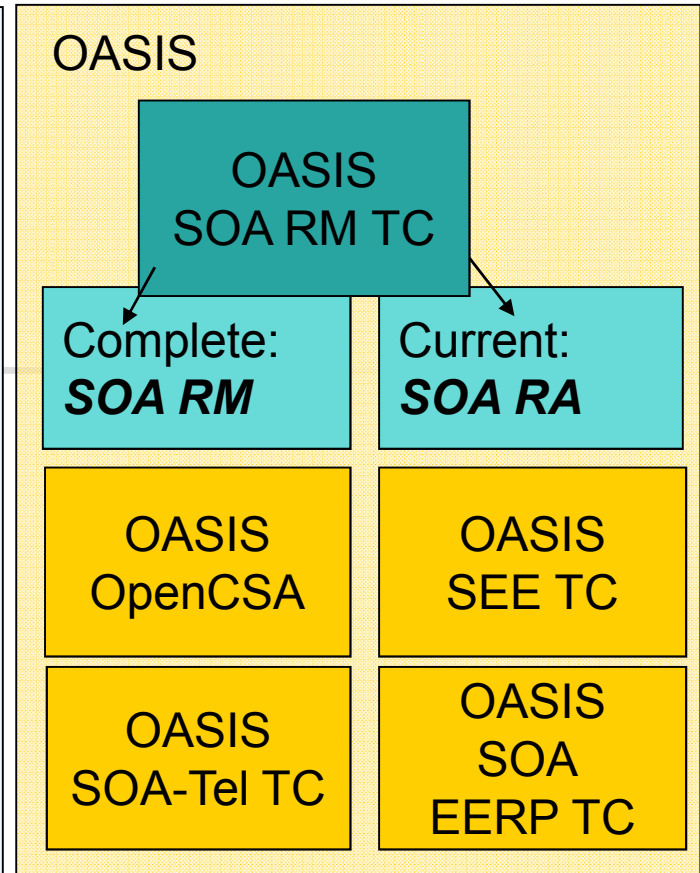
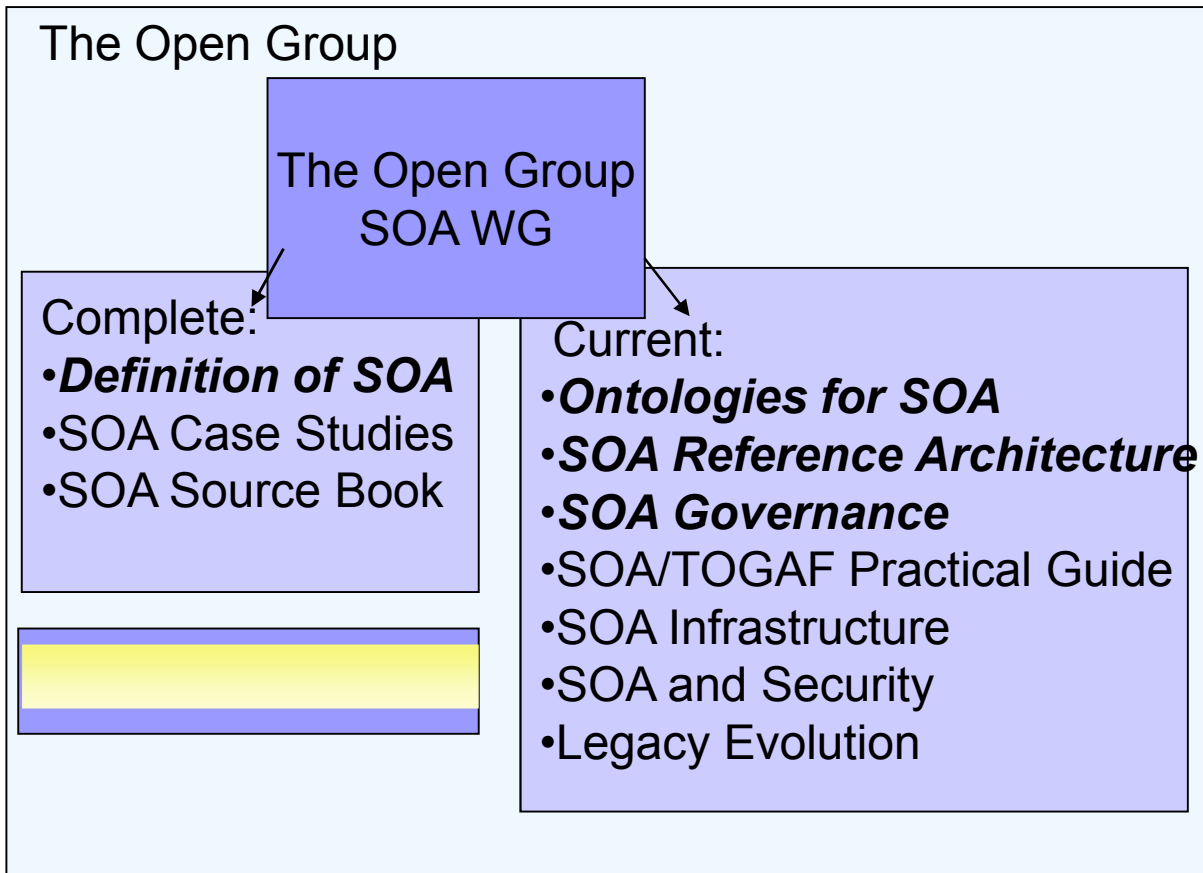
- Normative
- Product driven
- Conformance
- Interoperability focused

Types of Architectural Standards

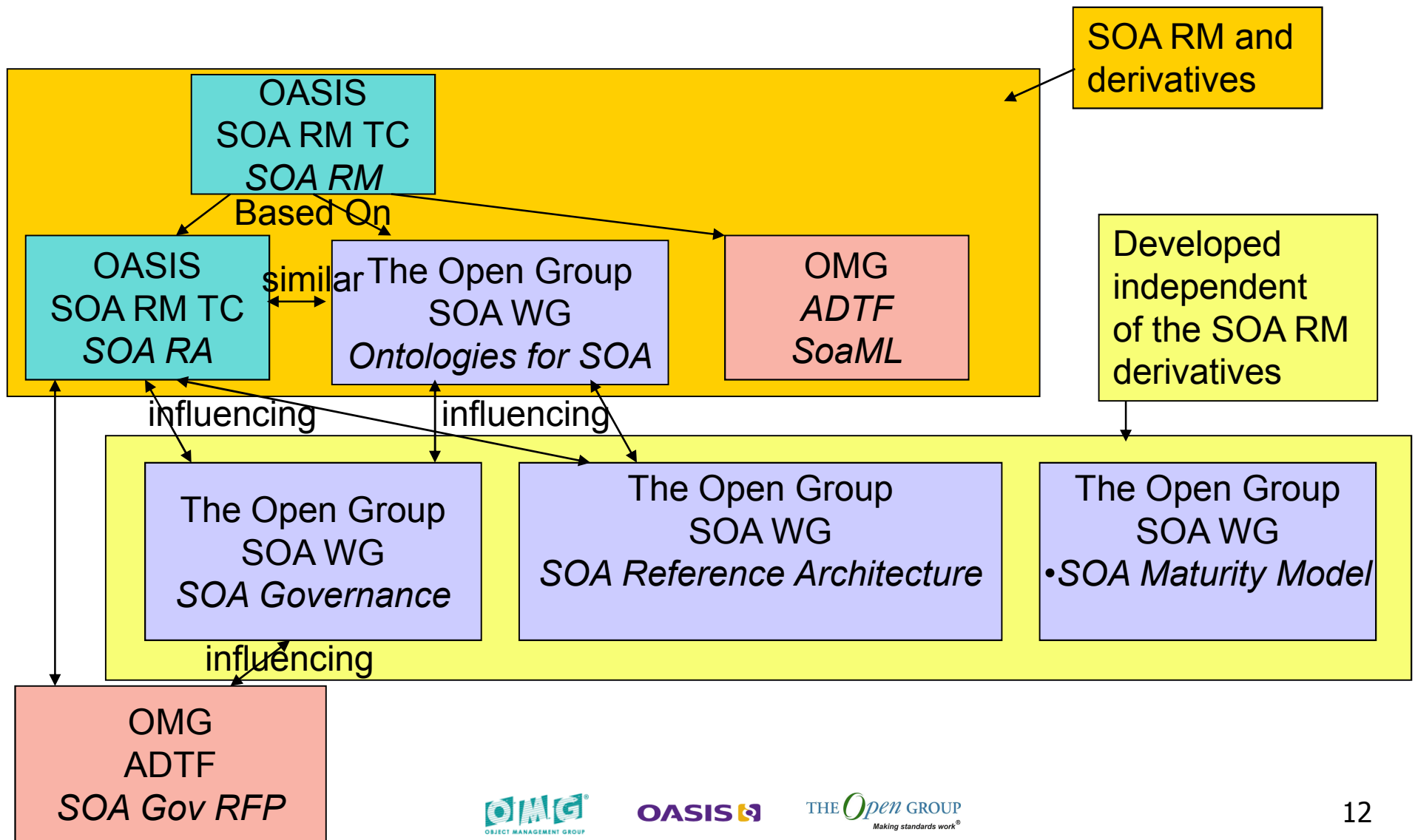


Conceptual Relationship Between Standards





Derivation of Specifications





Summary of Architecture Standards Concept Standards

- OASIS SOA Reference Model (SOA RM)
 - For: Understanding Core SOA concepts
 - Vocabulary and common understanding and 'essence' of SOA
 - Establishes foundation for other to follow on SOA standards
 - <http://docs.oasis-open.org/soa-rm/v1.0/soa-rm.pdf>
- The Open Group Ontology
 - For: Formalizing and understanding Core SOA concepts
 - Formalizes and refines OASIS SOA RM
 - Extends model with concepts for architecture, governance
 - OWL representation to facilitate tools and automation
 - <http://www.opengroup.org/projects/soa-ontology/uploads/40/16940/soa-ontology-200-draft.pdf>



Summary of Architecture Standards

Reference Architecture Standards

- OASIS SOA Reference Architecture for Foundation SOA
 - For: Understanding elements of SOA, Considerations for cross ownership boundaries, Completeness of SOA architectures and implementations, SOA governance
 - View-based abstract reference architecture foundation that models SOA from an ecosystem/paradigm perspective
 - Views: Service Ecosystem, Realizing SOA, Owning SOA
 - <http://docs.oasis-open.org/soa-rm/soa-ra/v1.0/soa-ra-pr-01.pdf>
- The Open Group SOA Reference Architecture
 - For: Understanding elements of SOA, Deployment of SOA in enterprise, Basis for an industry or organizational reference architecture, Implication of architectural decisions, Positioning of vendor products in SOA context
 - intended to support the understanding, design, and implementation of common system, industry, enterprise, and solution architectures leveraging principles of SOA
 - Layered architecture using consumer and provider perspectives with cross cutting concerns and architectural building blocks.
 - <http://www.opengroup.org/projects/soa-ref-arch/uploads/40/19713/soa-ra-public-050609.pdf>



Summary of Architecture Standards

SOA Governance Standards

- The Open Group Governance Framework
 - For: understanding SOA governance in organizations
 - SOA Governance concepts and method for customizing an organization specific governance regimen from the governance framework
 - SOA Governance reference model and vitality method
 - http://www.opengroup.org/projects/soa-governance/uploads/40/19263/SOA_Governance_Architecture_v2.4.pdf
- OASIS SOA Reference Architecture for Foundation SOA – Governance
 - For: understanding SOA governance across ownership boundaries where there is no single authoritative entity
 - General Governance and SOA Governance concepts
 - <http://docs.oasis-open.org/soa-rm/soa-ra/v1.0/soa-ra-pr-01.pdf>

Summary of Architecture Standards

Maturity Models, Modeling languages

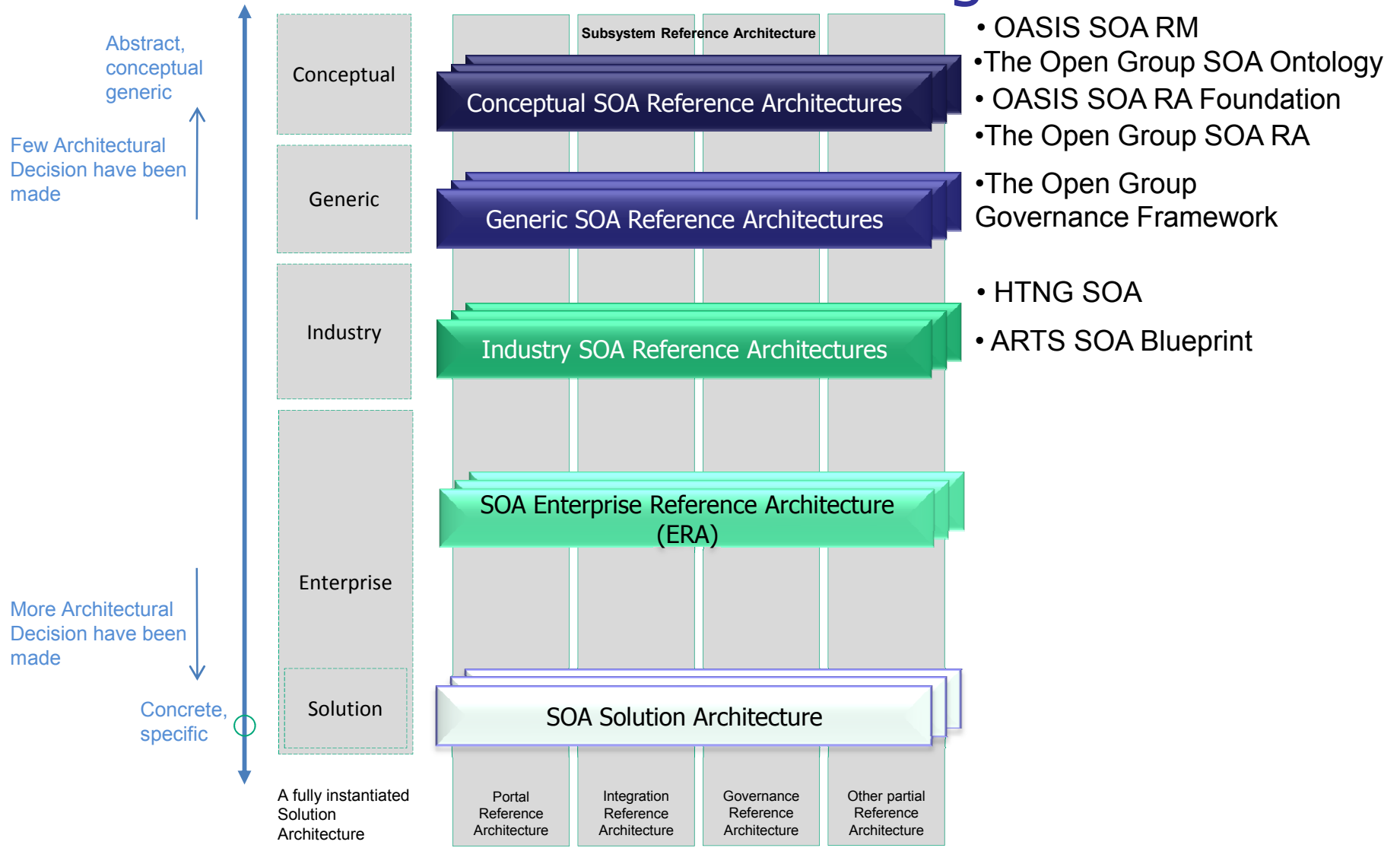
Maturity Models

- The Open Group Service Integration Maturity Model (OSIMM)
 - For: Understanding the level of SOA maturity in an organization
 - Means to assess an organization's maturity within a broad SOA spectrum
 - Process to create a roadmap for incremental adoption
 - http://www.opengroup.org/projects/osimm/uploads/40/19756/OSIMM_v2.1_6-04-09_Review.doc

Modeling Languages

- OMG SoaML
 - For: Understanding representing SOA artifacts in UML
 - Supports services modeling extensions to UML
 - Metamodel and UML profile
 - <http://www.omg.org/cgi-bin/doc?ad/08-11-01>

Reference Architecture Continuum and Positioning

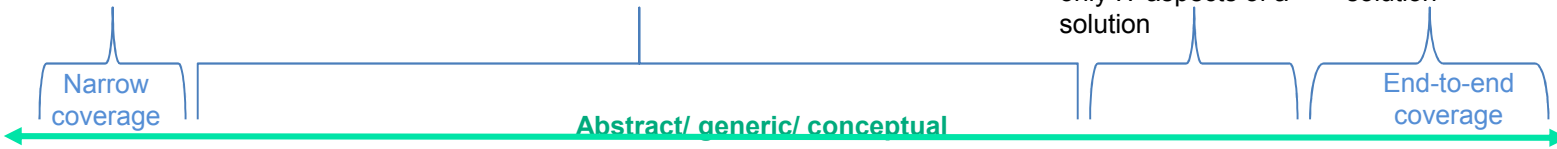


Architecture Pattern
(MVC, for example)

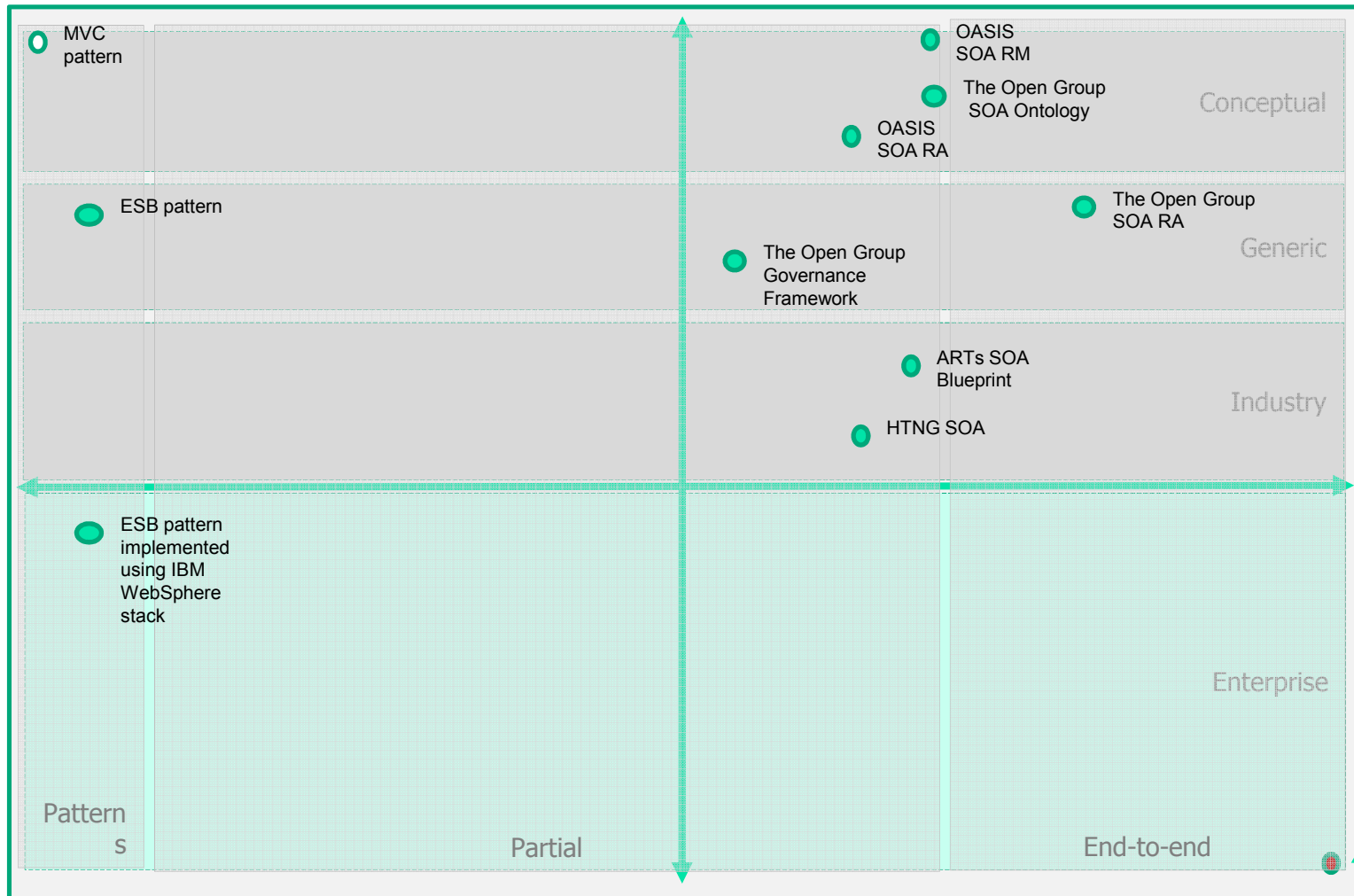
Partial Reference Architecture covering
specific subsystem such as presentation,
integration or security

End-to-end Technical
Reference
Architecture covering
only IT aspects of a
solution

End-to-end Reference
Architecture covering
business and IT aspect of a
solution



Narrow
Architecture
pattern



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SOA and SOA Governance Concepts

- SOA
- Service
- Visibility
- Interaction
- Effect
- Service Description
- Policies and Contracts
- Execution Context
- SOA Governance
- Governance Framework
- Governance Reference Model
- EA Governance
- People
- Technology
- Guiding Principles
- Roles
- Governing Process
- Governed Processes
- Vitality

Guidance and usage of technical products

- Use OASIS RM for general understanding of SOA
- Use TOG SOA Ontology for more formal language and broader scope
- Use TOG SOA RA for principles, patterns, building blocks and decisions for needed for SOA solutions
- Use OASIS SOA RA for considering abstract components that will be included in SOA design especially when addressing considerations for cross-ownership boundaries
- Use TOG SOA Governance for guidance on the deployment of SOA governance in the enterprise
- Use OSIMM to understand what SOA features you are using and how to evolve your adoption of SOA
- Use OMG SoaML to create instances of services models that can be reused, integrated and possibly transformed into platform implementations
- OSIMM can provide guidance into which specifications are most relevant to you



Conclusions and Questions

- Common concepts across so many specifications may be indications of SOA maturity
- Specifications can be complimentary
 - SoaML can be used with any of the Reference Architectures
- Pick the specification that's right for your needs
- Secondary goals
 - Establish collaboration between the standards bodies
 - Encourage consistency across the standards addressing the various aspects of SOA.
- Joint White Paper available at:
 - The Open Group:
 - OASIS:
 - OMG: <http://www.omg.org/cgi-bin/doc?ad/2009-06-01>