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OMG
OBJECT MANAGEMENT GROUP

Navigating the SOA Standards Landscape Around Architecture

aka: 'SOA Harmonization'

Heather Kreger, IBM, Editor
Jeff Estefan, NASA/Jet Propulsion Laboratory, Editor

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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

Developers of this Whitepaper
The Open Group, OASIS, OMG

The Open Group
- Ali Arsanjani, IBM
- Anthony Carrato, IBM
- Carleen Christner, HP
- Eric Dabbaghchi, MITRE
- Jorge Diaz, IBM
- Ahmed Fattah, IBM
- Leonard Fehskens, The Open Group
- Mats Gejnevall, Capgemini
- Chris Greenslade, CLARS Ltd.
- Chris Harding, The Open Group
- Ed Harrington, Model Driven Solutions (and OMG)
- Allen Jones, Boeing
- Heather Kreger, IBM (and OASIS), Editor
- Nikhil Kumar, Applied Technology Solutions
- Robert Laird, IBM
- Milena Litoiu, CGI
- Sinan Madenli, CGI
- Bruce Miner, Direct Energy

OASIS
- Bob Ellinger, Northrop Grumman
- Jeff Estefan, NASA/Jet Propulsion Laboratory, Editor
- Ken Laskey, MITRE
- Francis McCabe
- Duane Nickull, Adobe

OMG
- Jim Amsden, IBM
- James Odell, CSC (and OASIS)
- Harsh Sharma, Metlife

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

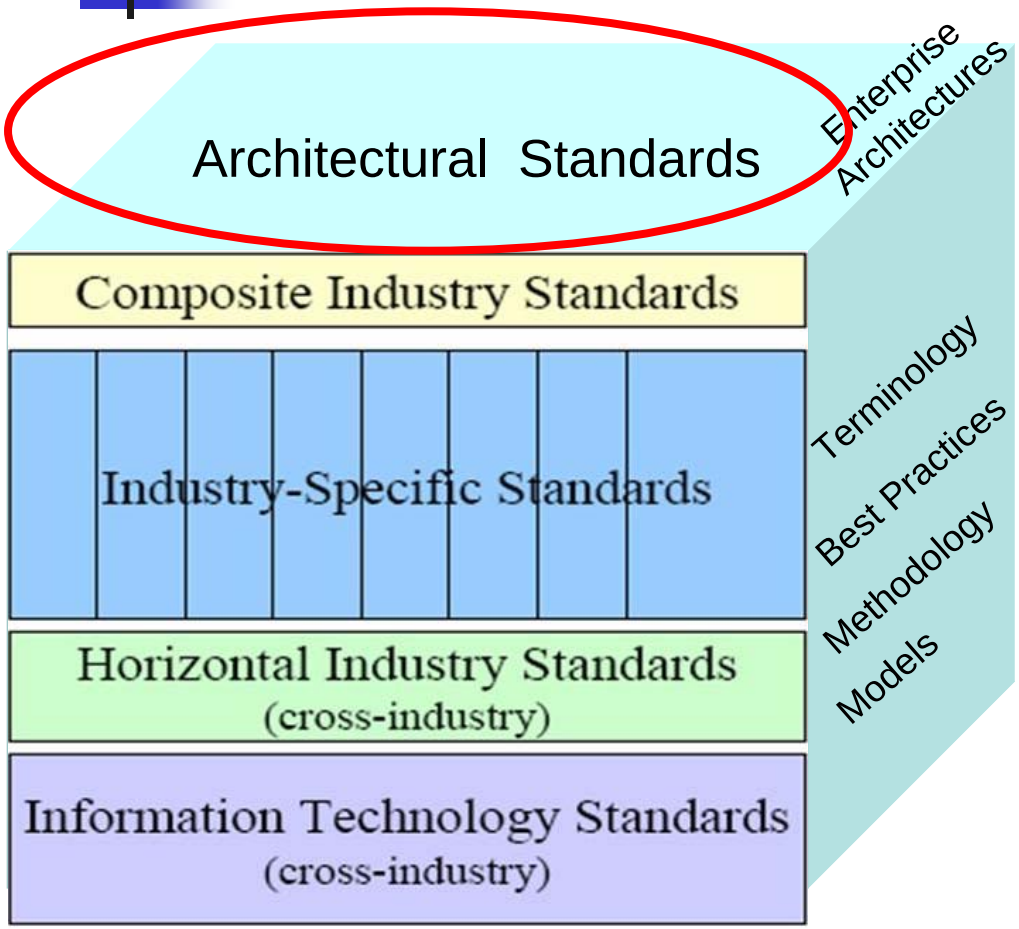
Some non-goals, ideas for future collaboration

- 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



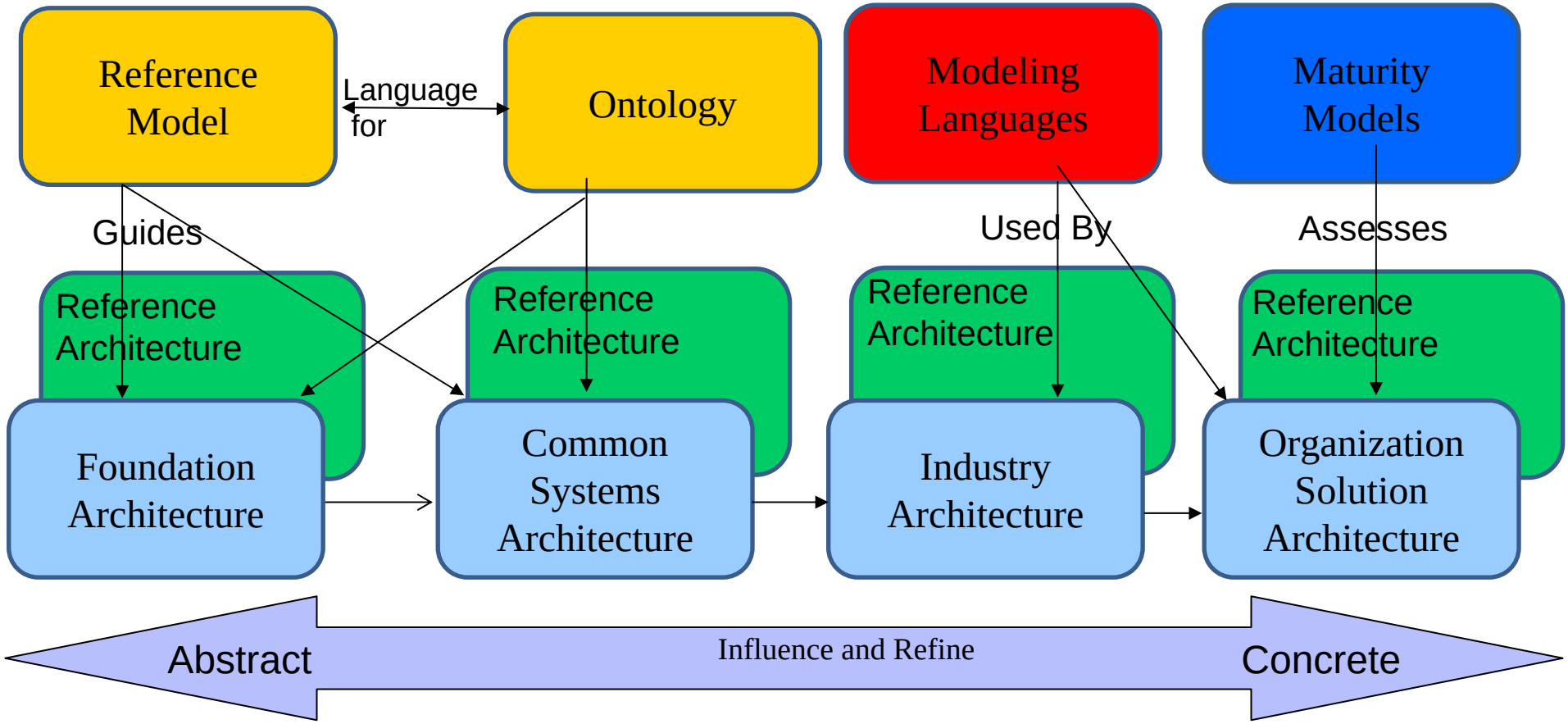
Architectural standards:

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

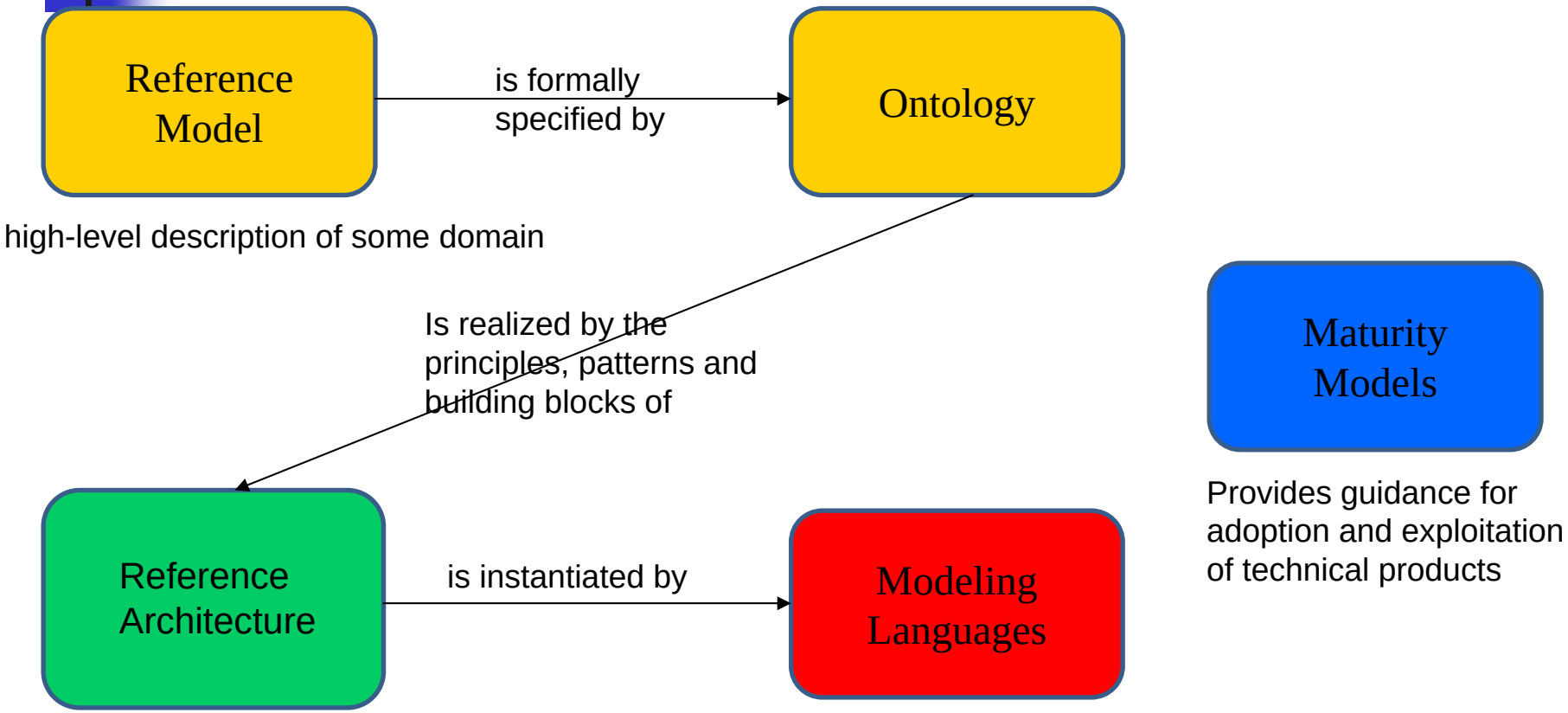
Infrastructure Standards:

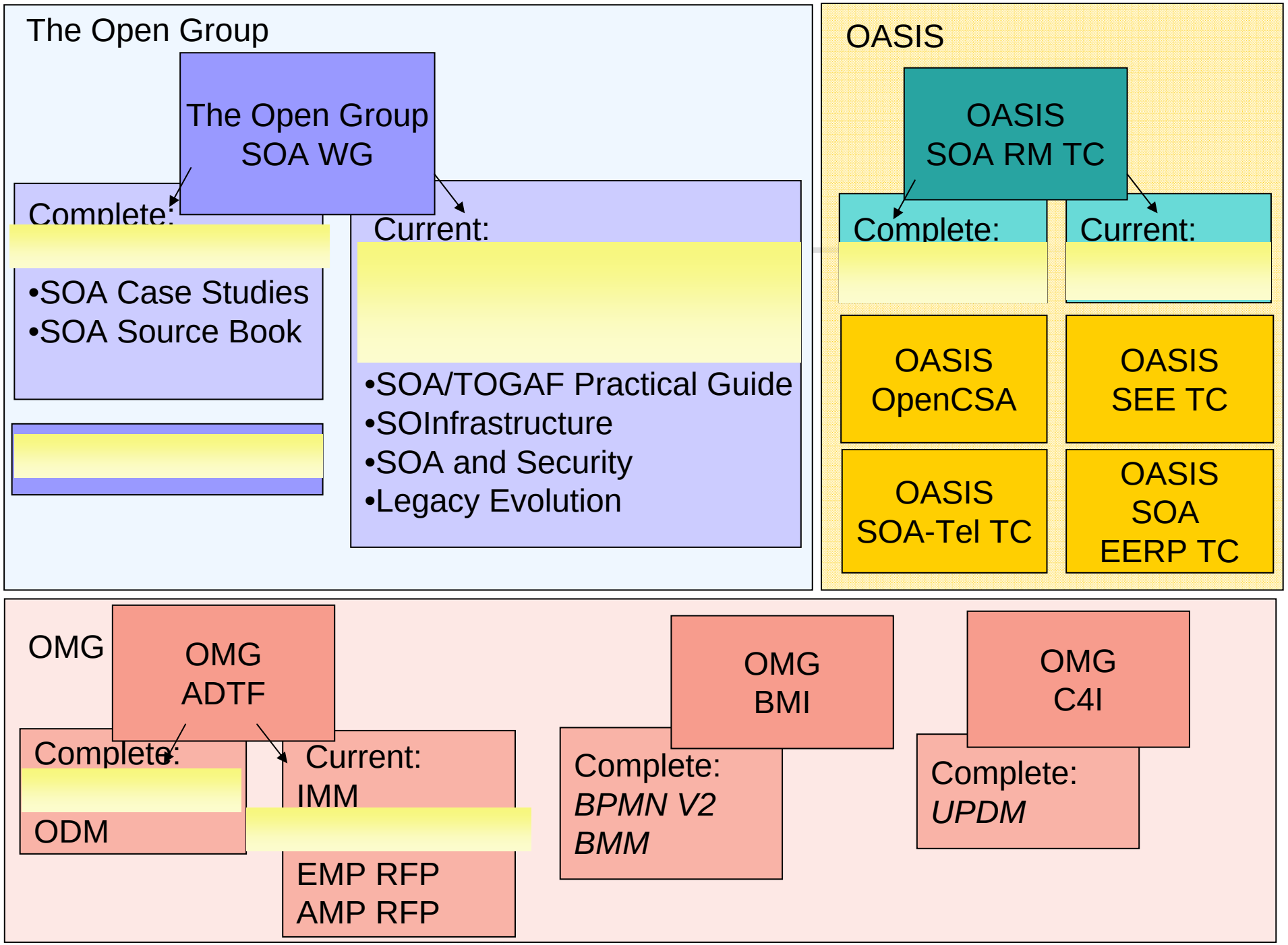
- Normative
- Product driven
- Conformance
- Interoperability focused

Types of Architectural Standards

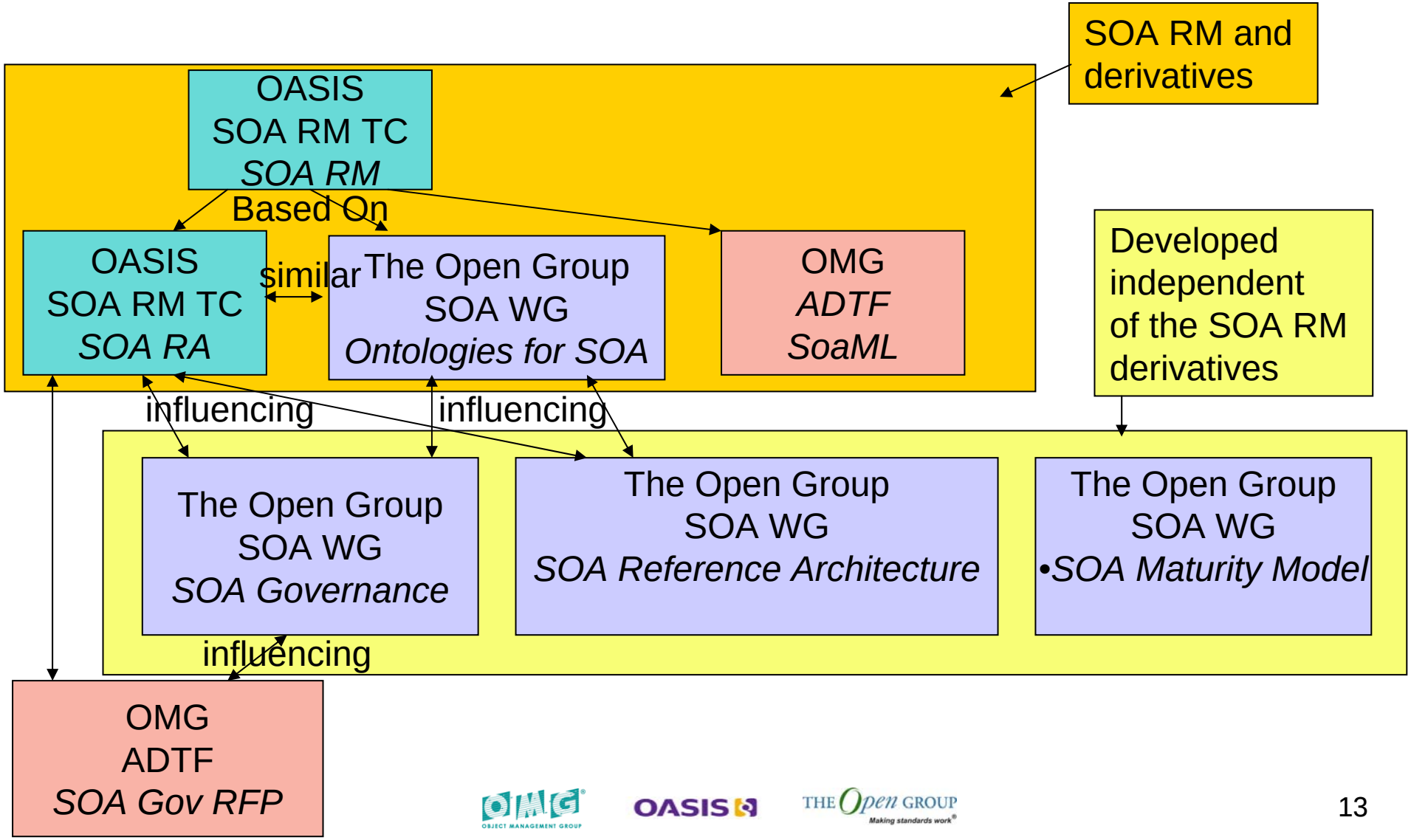


Conceptual Relationship Between Standards




The Open Group
The Open Group SOA WG
Complete:
•SOA Case Studies
•SOA Source Book
Current:
•SOA/TOGAF Practical Guide
•SOInfrastructure
•SOA and Security
•Legacy Evolution
OASIS
OASIS SOA RM TC
Complete:
Current:
OASIS OpenCSA
OASIS SEE TC
OASIS SOA-Tel TC
OASIS SOA EERP TC
OMG
OMG ADTF
Complete:
ODM
Current:
IMM
EMP RFP
AMP RFP
OMG BMI
Complete:
BPMN V2
BMM
OMG C4I
Complete:
UPDM

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

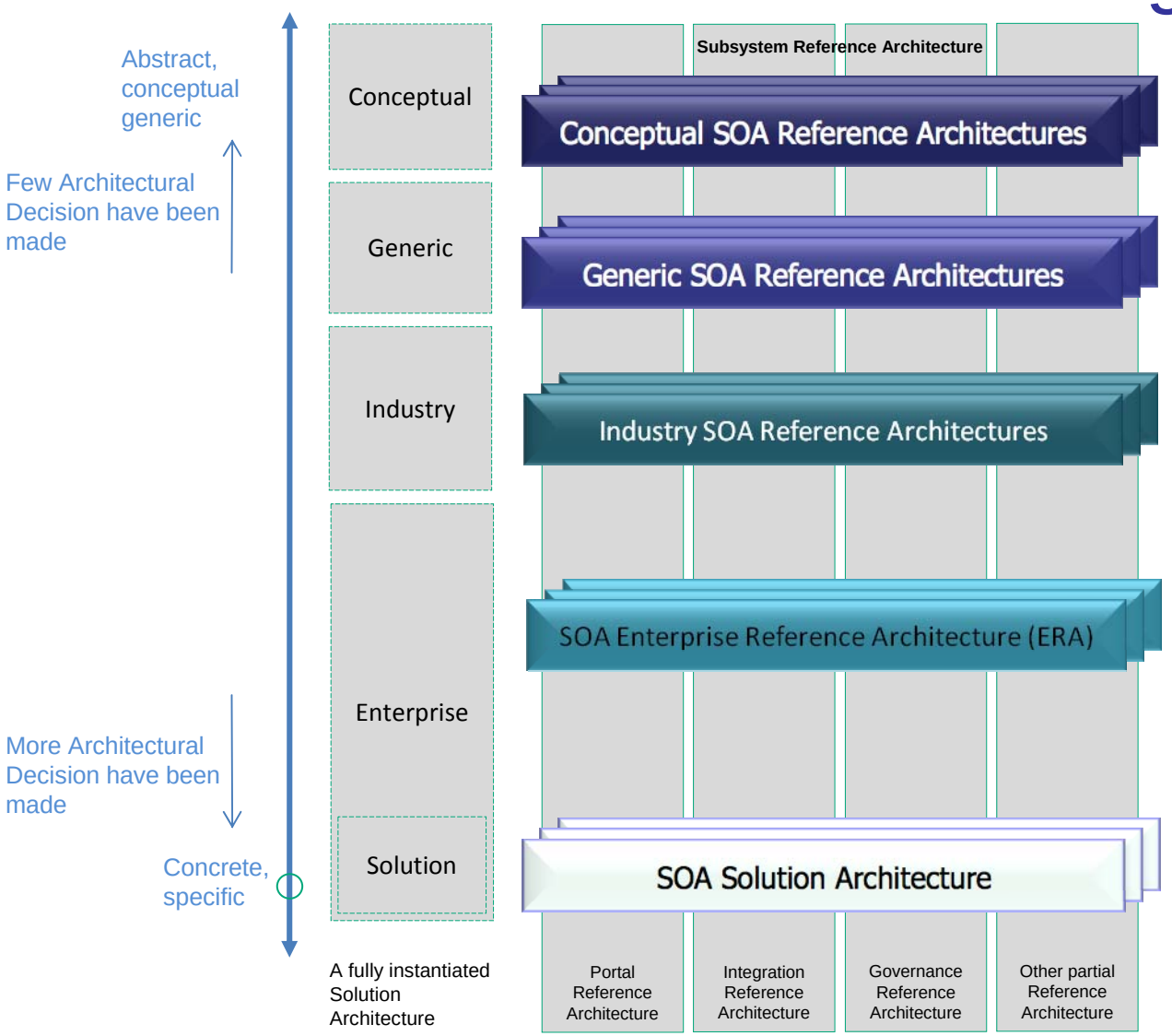
Maturity Models

- 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

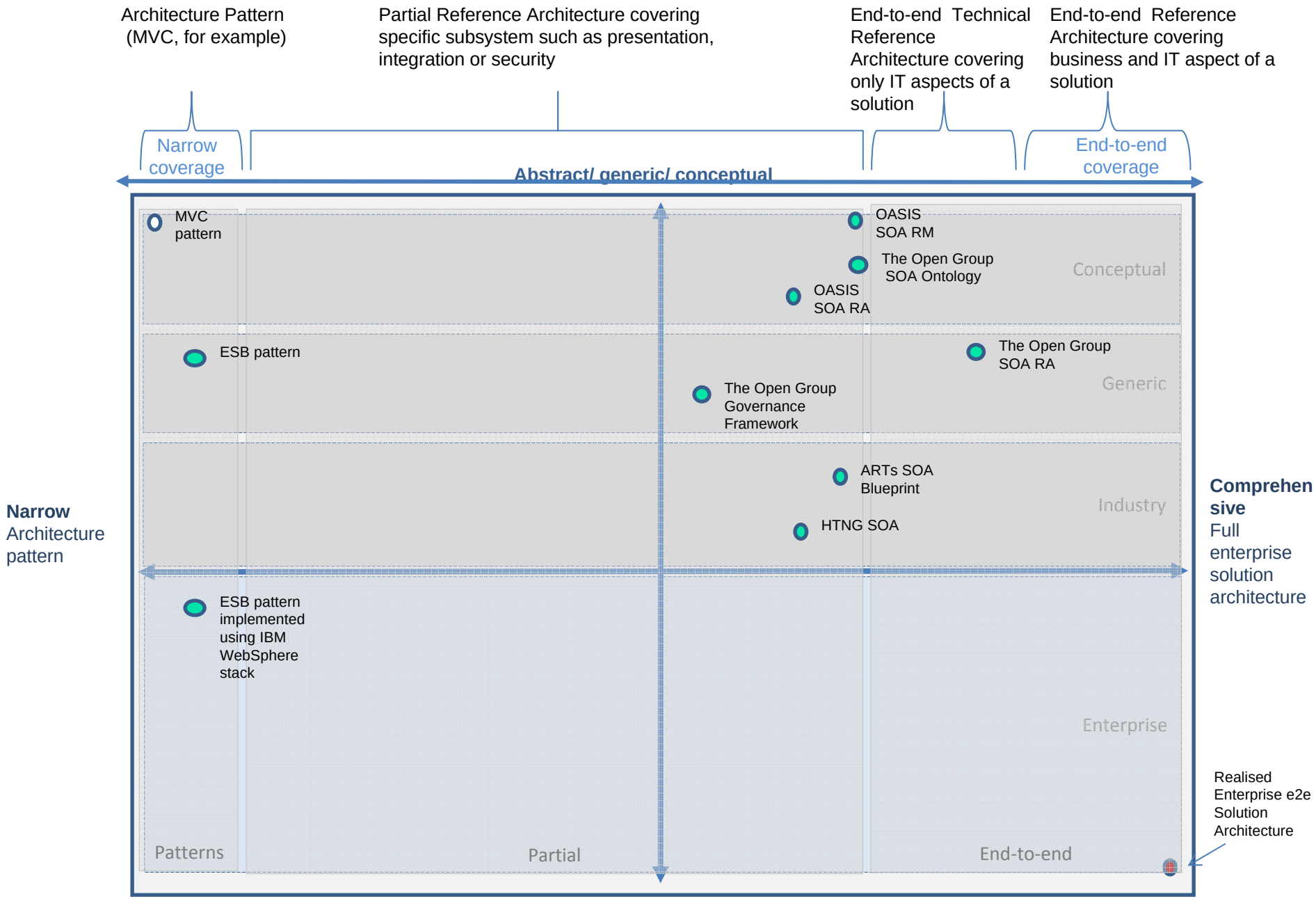
Modeling Languages

- 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



- OASIS SOA RM
- The Open Group SOA Ontology
- OASIS SOA RA Foundation
- The Open Group SOA RA
- The Open Group Governance Framework
- HTNG SOA
- ARTS SOA Blueprint


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 coverage
End-to-end coverage
Abstract/ generic/ conceptual
Concrete/ Specific/ physical
Narrow Architecture pattern
Comprehensive Full enterprise solution architecture
MVC pattern
OASIS SOA RM
The Open Group SOA Ontology
OASIS SOA RA
Conceptual
ESB pattern
The Open Group SOA RA
The Open Group Governance Framework
Generic
ARTs SOA Blueprint
HTNG SOA
Industry
ESB pattern implemented using IBM WebSphere stack
Enterprise
Realised Enterprise e2e Solution Architecture
Patterns
Partial
End-to-end

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

Thank You!