SOA Standards Landscape and Value

Navigating the SOA Standards Landscape Around Architecture

aka: ‘SOA Harmonization’

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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 Group:

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 Group: 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

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Developers of this Whitepaper

The Open Group, OASIS, OMG

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Goals of this joint 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
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

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The Value of Standards for SOA

- Vendor neutral
- Common foundation of understanding
  - no mapping vendor terminology
- Best Practices from multiple vendors
- Reduces risk
  - knowledge more mature/validated
  - more vendor options
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
Types of Architectural Standards

Reference Model

Ontology

Modeling Languages

Maturity Models

Guides

Reference Architecture

Foundation Architecture

Common Systems Architecture

Industry Architecture

Organization Solution Architecture

Language for

Used By

Assesses

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Conceptual Relationship Between Standards

- Reference Model
  - is formally specified by
  - high-level description of some domain

- Ontology
  - Is realized by the principles, patterns and building blocks of
  - Enables the automation and interchanges of instances of models

- Reference Architecture
  - is instantiated by

- Modeling Languages
  - Provides guidance for adoption and exploitation of technical products

- Maturity Models
  - Enables the automation and interchanges of instances of models
Derivation of Specifications

OASIS SOA RM TC
SOA RM

OASIS SOA RM TC
SOA RA

The Open Group
SOA WG
Ontologies for SOA

OMG ADTF
SoaML

The Open Group
SOA WG
SOA Governance

The Open Group
SOA WG
SOA Reference Architecture

The Open Group
SOA WG
• SOA Maturity Model

SOA RM and derivatives

Developed independent of the SOA RM derivatives

Based On

similar

influencing

influencing

influencing

OMG ADTF
SOA Gov RFP
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](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

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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](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.

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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

- 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](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

Modeling Languages

- OMG SoaML
  - For: Understanding representing SOA artifacts in UML
  - Supports services modeling extensions to UML
  - Metamodel and UML profile

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Reference Architecture

Continuum and Positioning

Abstract, conceptual, generic

Few Architectural Decision have been made

Conceptual

Generic

Industry

Enterprise

Solution

Conceputal SOA Reference Architectures

Generic SOA Reference Architectures

Industry SOA Reference Architectures

SOA Enterprise Reference Architecture (ERA)

SOA Solution Architecture

More Architectural Decision have been made

Concrete, specific

• 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

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Abstract/generic/conceptual

Narrow coverage

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

Comprehensive Full enterprise solution architecture

Patterns

Partial

End-to-end

Concrete/Specific/physical

MVC pattern

ESB pattern

ESB pattern implemented using IBM WebSphere stack

OASIS SOA RM

The Open Group SOA Ontology

The Open Group SOA RA

OASIS SOA RA

ARTs SOA Blueprint

HTNG SOA

The Open Group Governance Framework

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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

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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 **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 RA** for principles, patterns, building blocks and decisions for needed for SOA solutions
- Use **TOG SOA Governance** for guidance on the deployment of SOA governance in the enterprise
- Use **OSI MM** 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
- OSI MM 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:
Thank You!