

# **Reference Model and Reference Architecture for SOA**

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# Agenda

- SOA RM
- SOA RA
- Q&A/Discussion

## Before we talk about SOA, Services or SaaS...



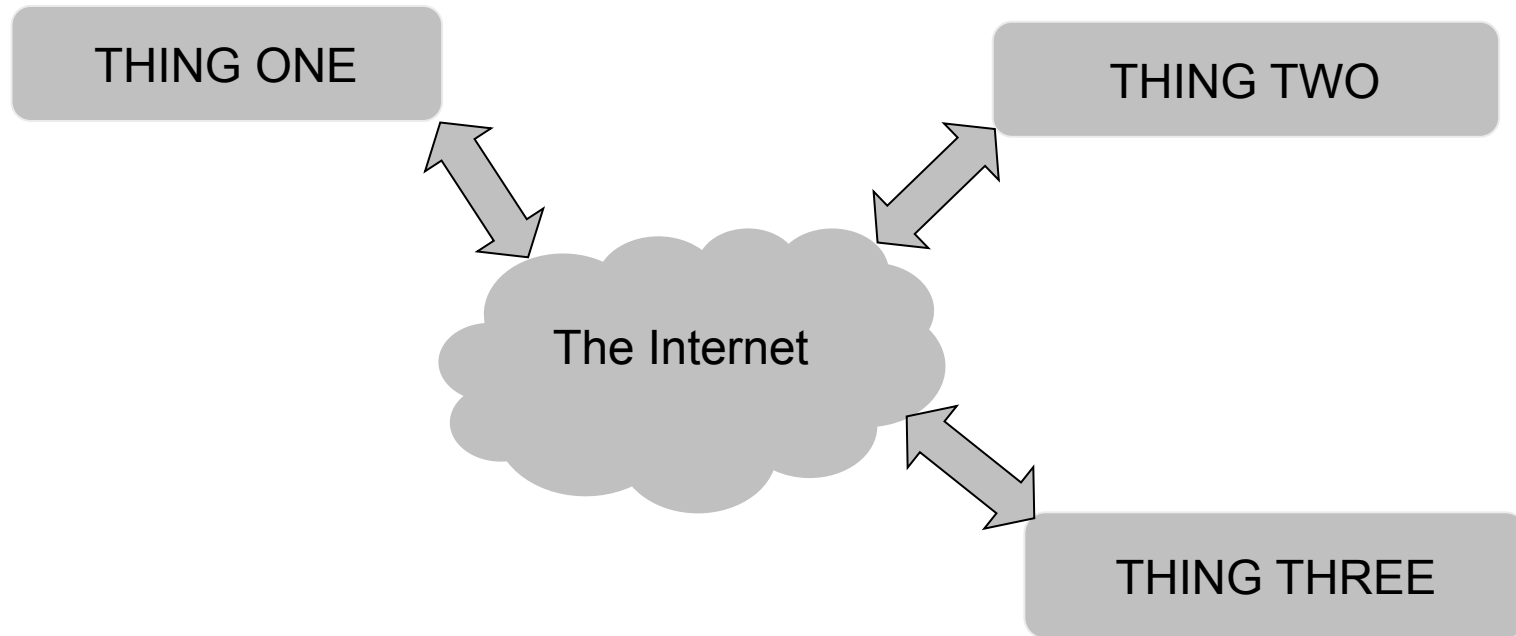
The tough questions for pragmatic people:

If SOA is architecture, how do we express it as architecture?

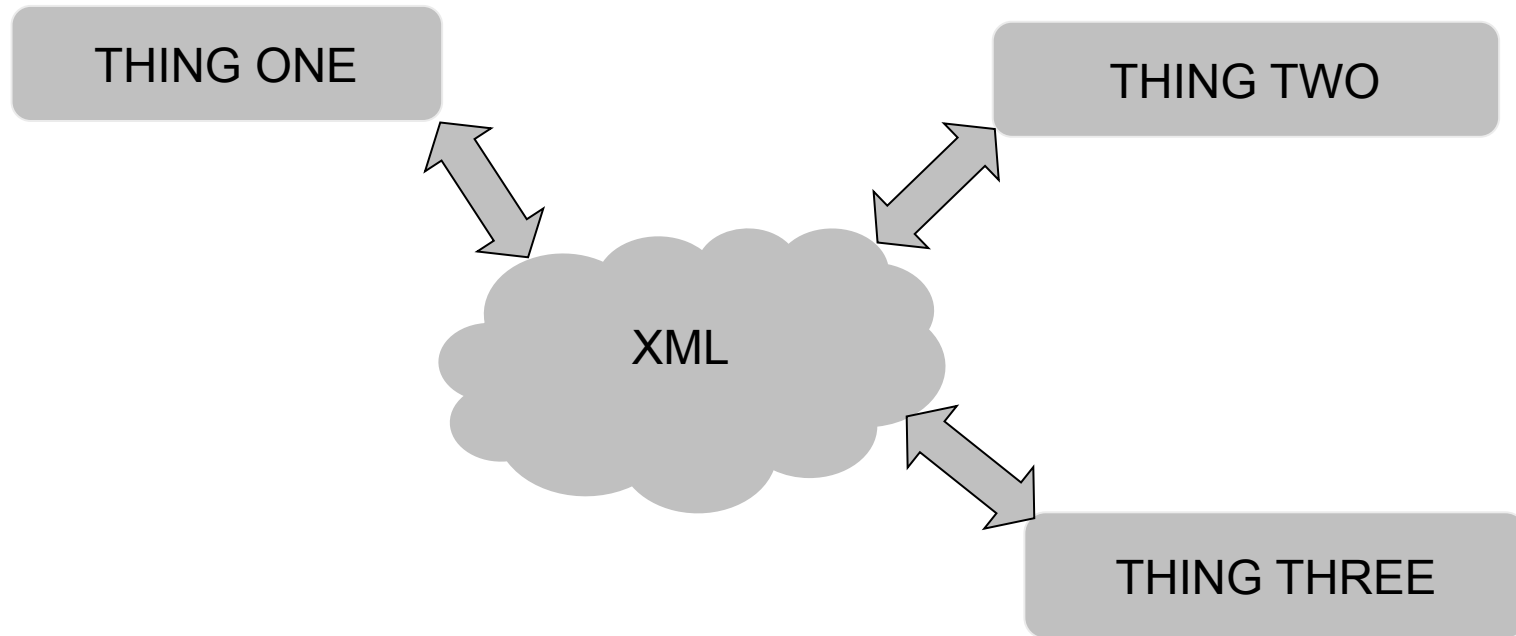
Is it sufficiently different from other types of architecture?

If SOA is “X”, what is !(SOA || X ) ?

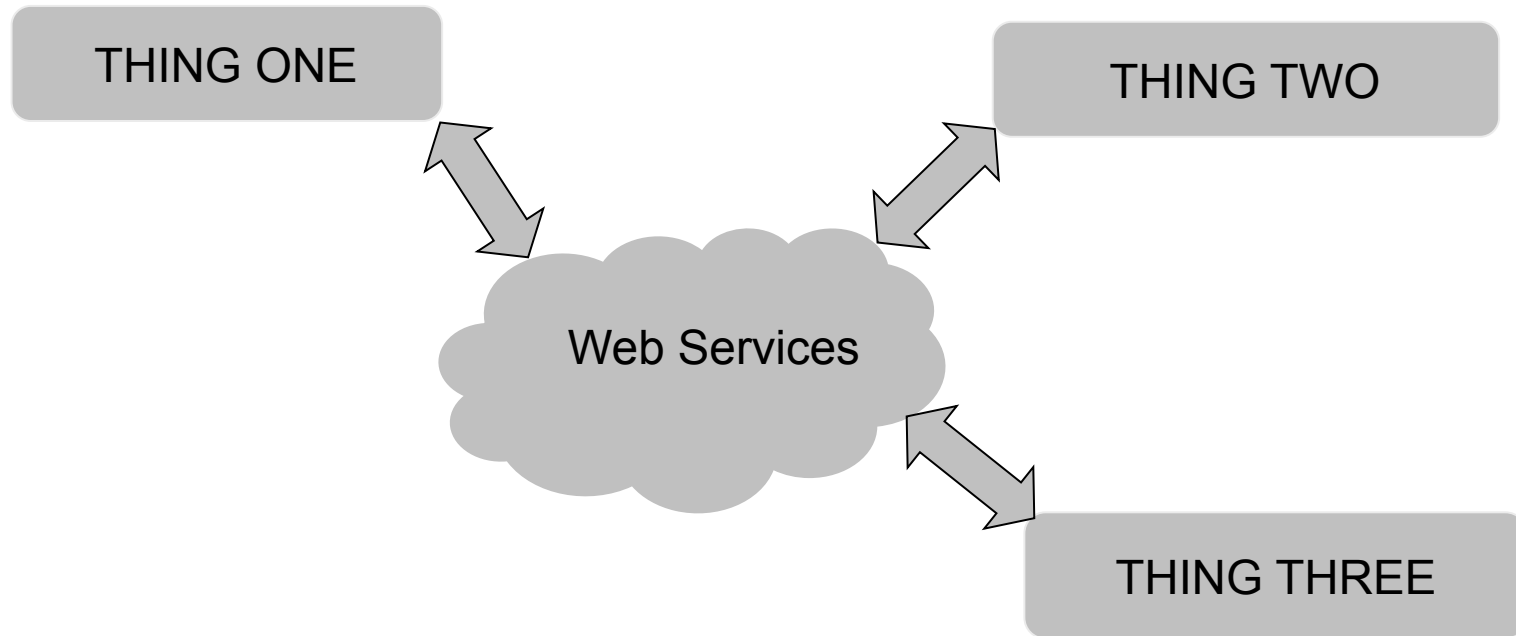
## 1996 –remember this slide



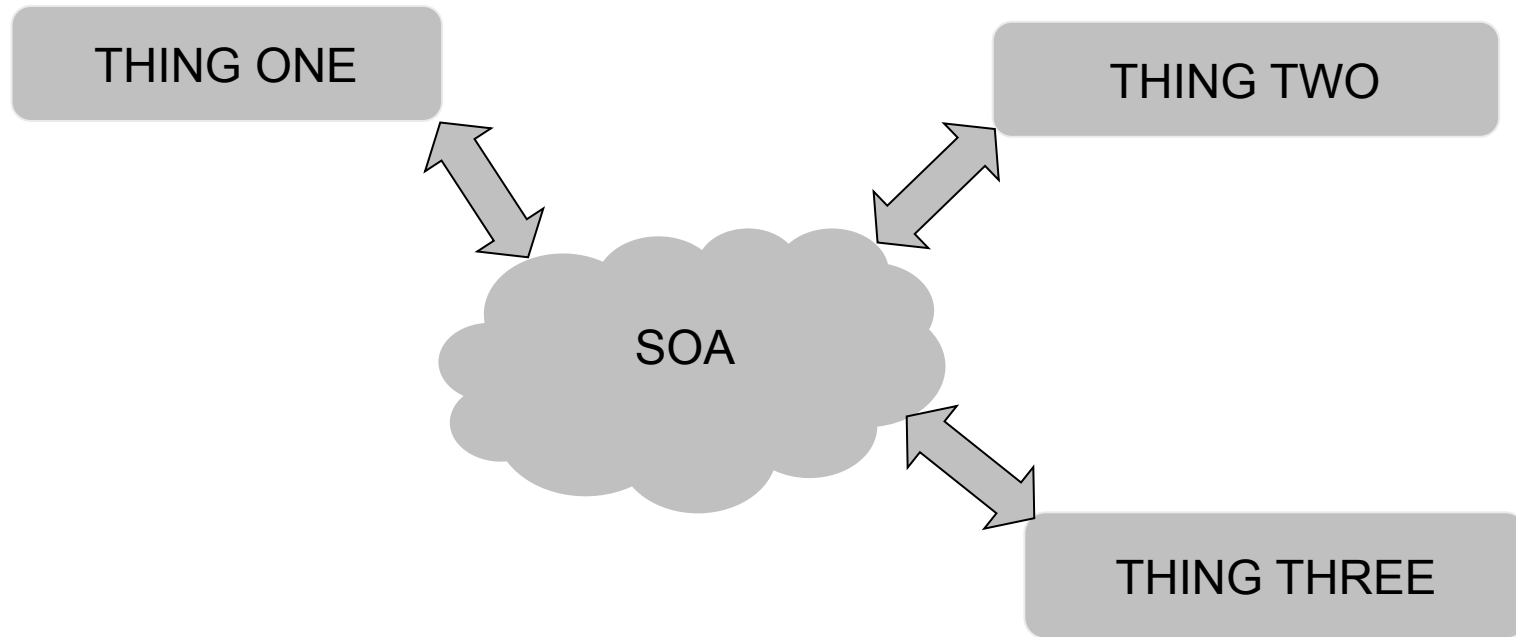
**1998...**



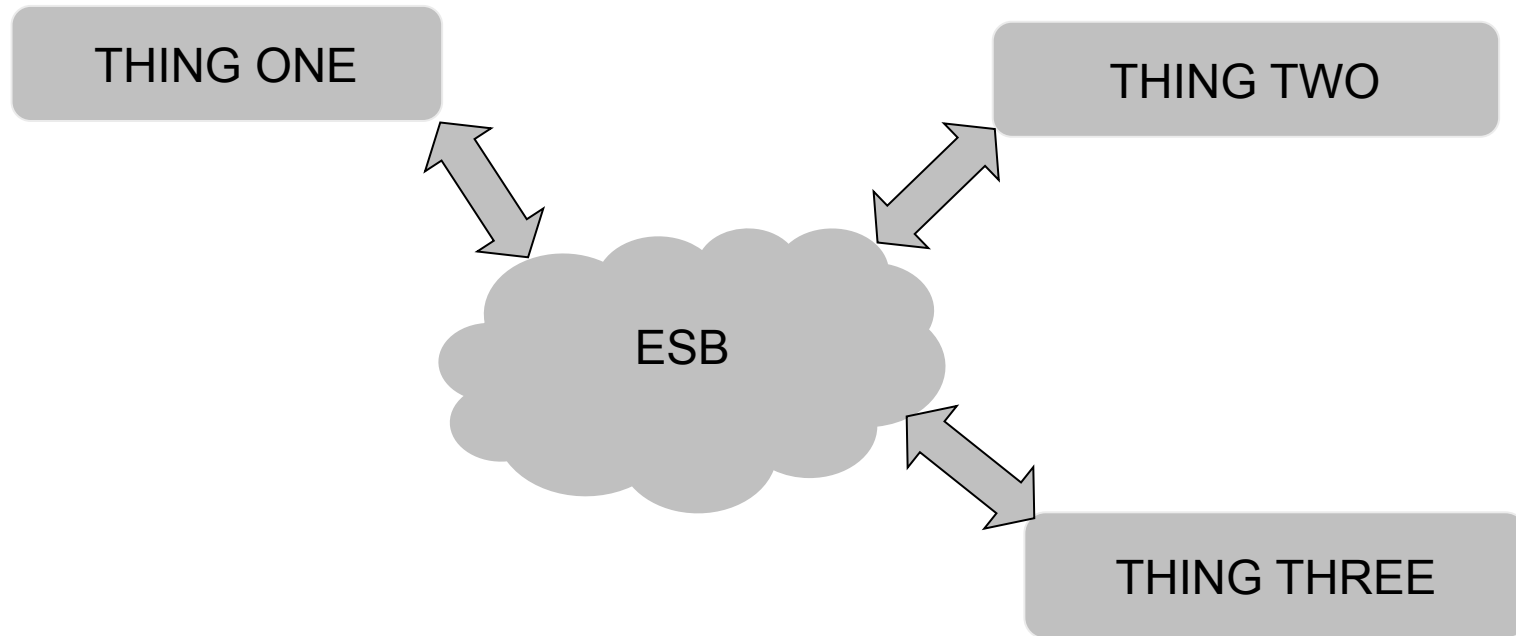
## 2001...



**2003...**

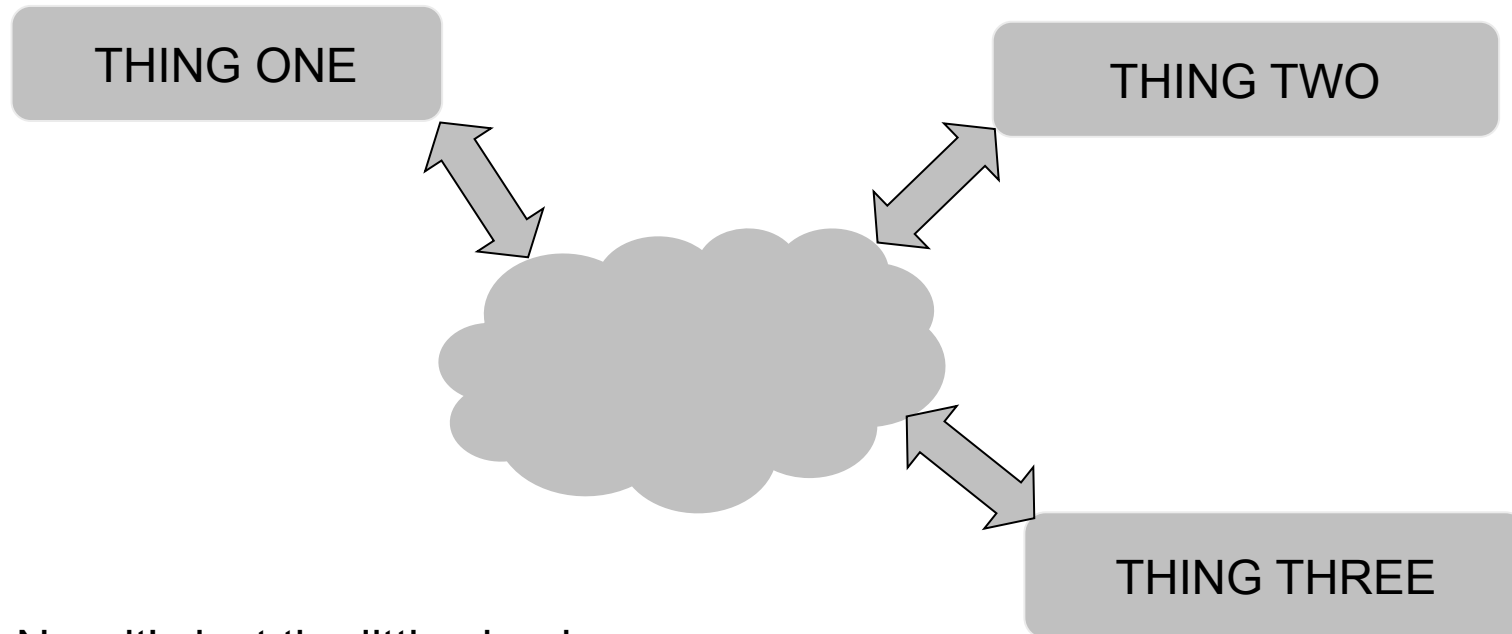


## 2005...





## 2008/9 (The marketers got lazy perhaps??)



Now it's just the little cloud...

## Snake Oil Advocates?

Is SOA a modern day *deus ex machina*?

Is it something we are already doing yet can be quantified as a unique perspective?

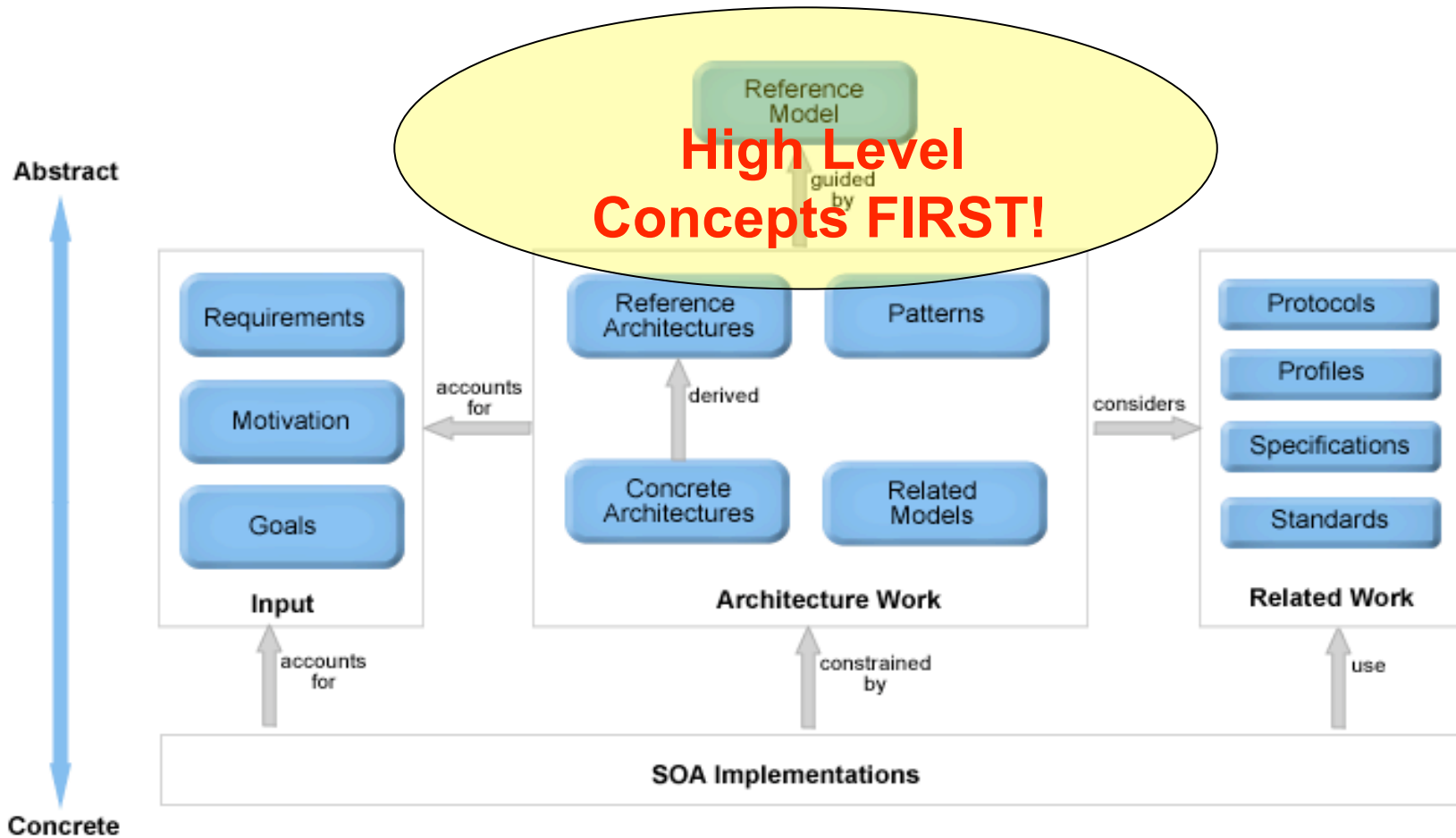
Is it Web Services?

SOA is not a product!!!

Once does not buy “post modernistic architecture”; you purchase a house built with “**post modernistic architecture**”.

SOA is definable using a normative ADL as a Reference Model.

# Pragmatics: How do architects capture knowledge?



## So what is SOA exactly?

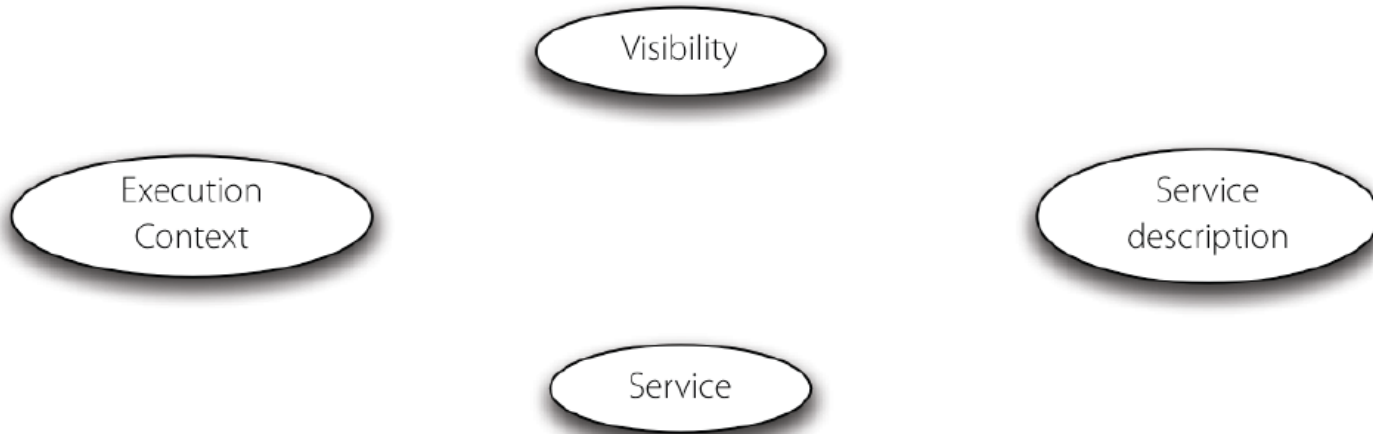
An **Architectural Paradigm** for organizing and using distributed capabilities that may be under the control of different ownership domains.

A framework for matching needs and capabilities.

A view of architecture focusing on “*Services*” as a mechanism to allow interactions between those with needs and capabilities.

A way of *thinking* about problems

# Core Model for SOA



Starbucks?



## The OASIS Reference Model for SOA...

Is not architecture for a single SOA system.

It is not even architecture – it is a model!

Is an *ABSTRACT* model for a range of Service Oriented architectures and analysis / comparison thereof.

Is a framework for understanding significant relationships among the entities in a SOA environment.

Industry standard - widely used (OASIS standard -2006)

## Using a singular point of reference is good!

### Reference:

A Reference Model acts as a point of reference for a domain.

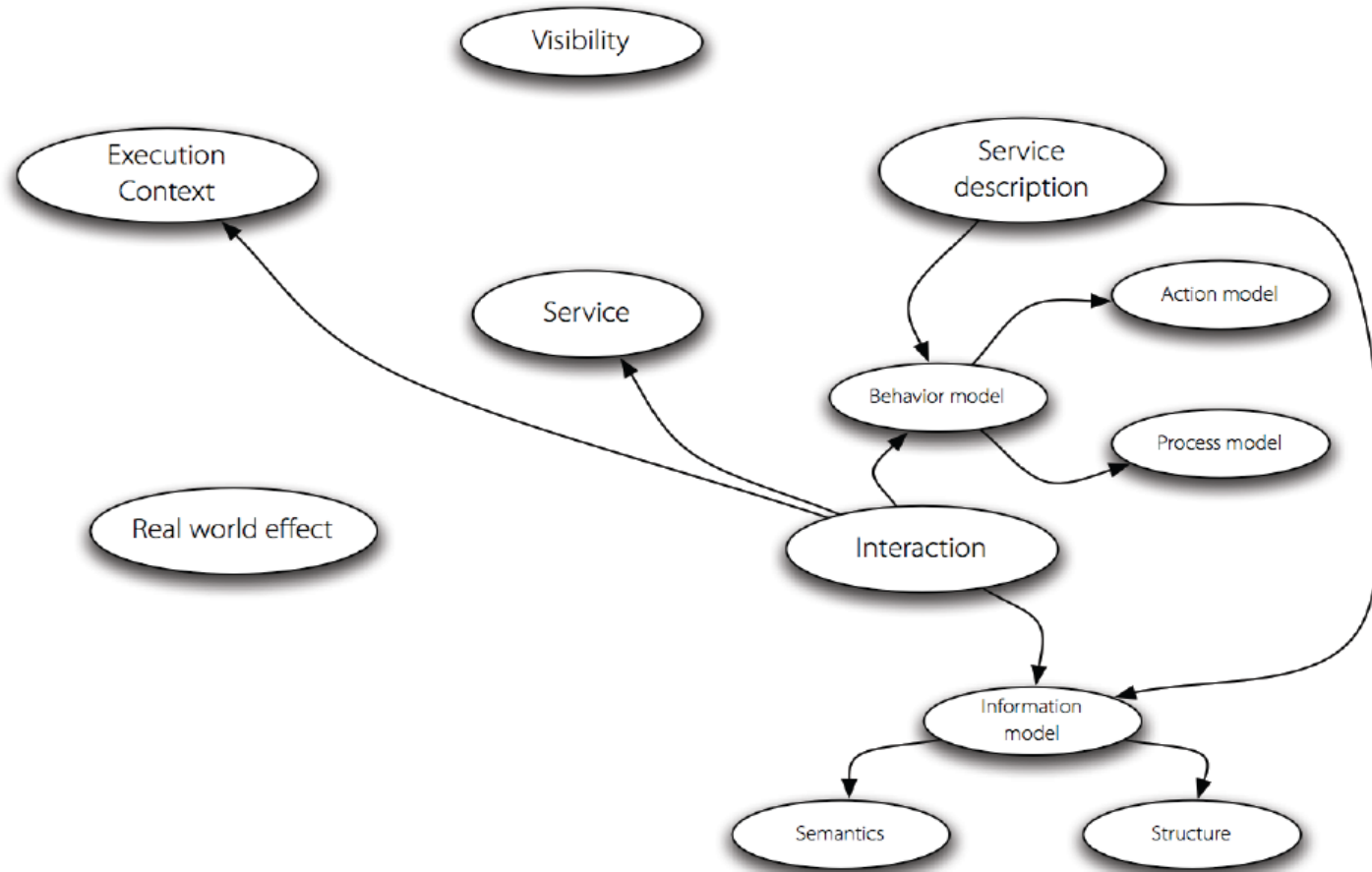
### Durability:

By not tying it directly to existing technologies it can be reused over a maximum set of environments.



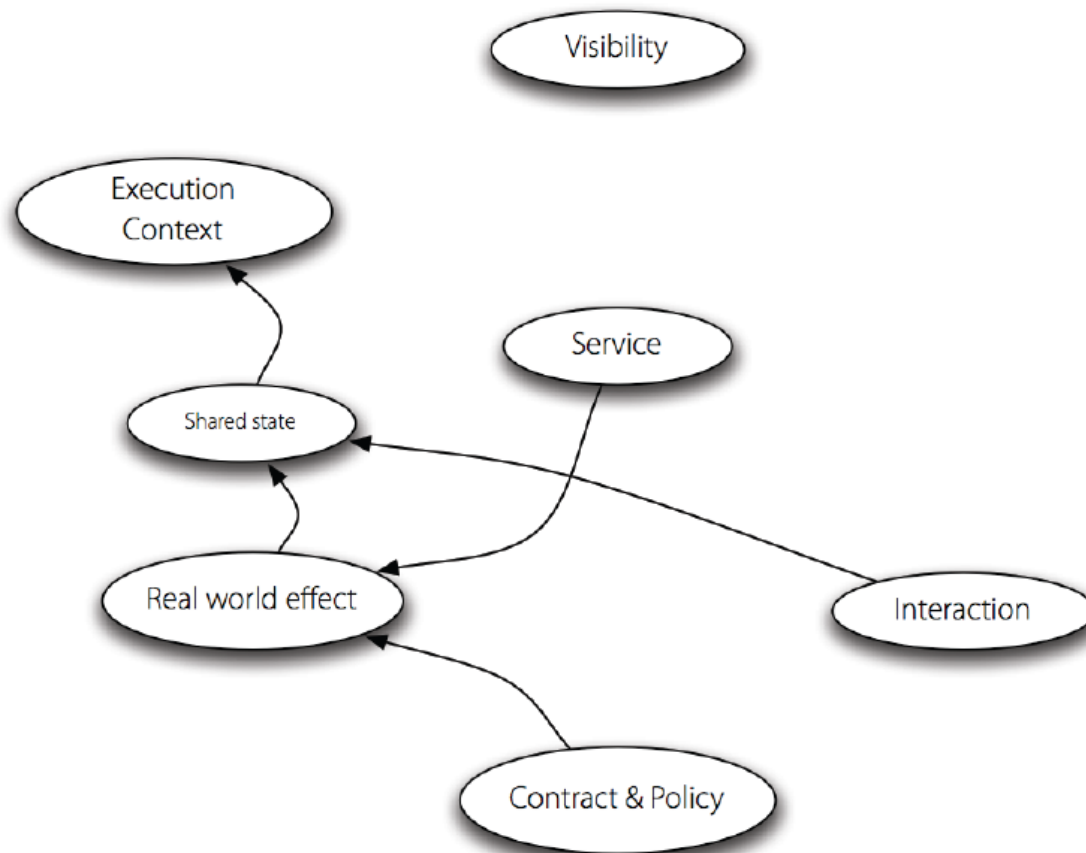


# Service Interaction -> Behavior & Information Models

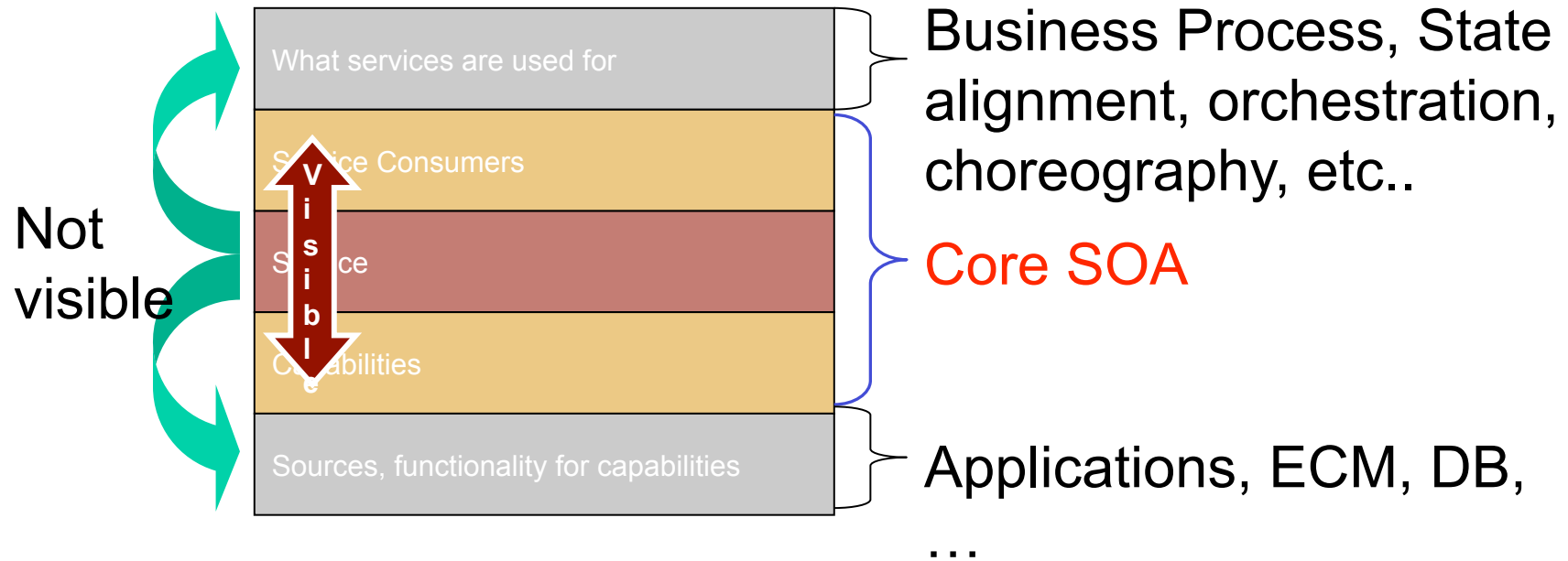




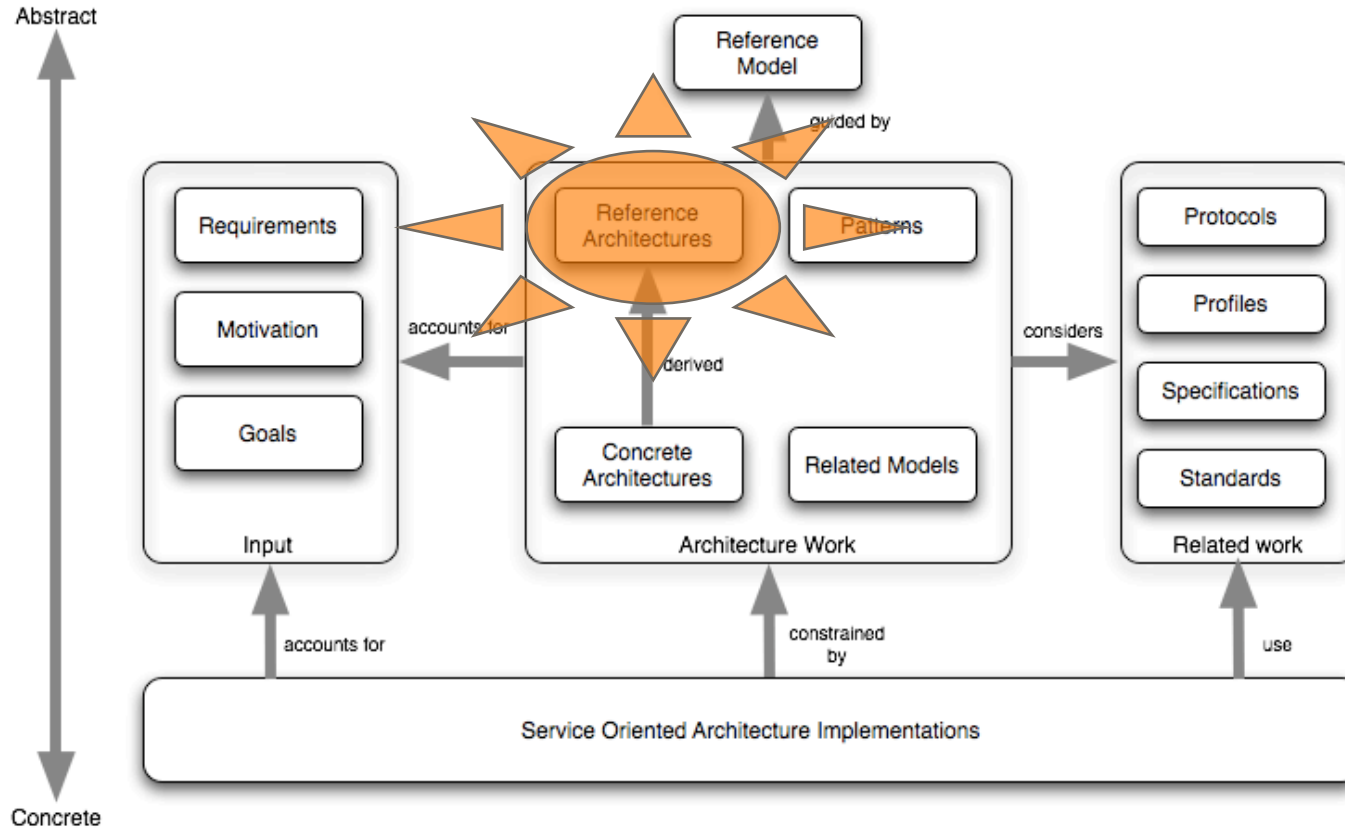
# Real World Effect



# What about BPM?



# Where the SOA RA fits



# What is a “Reference Architecture”?

*Here’s how we characterize it...*

Reference Architecture	(vs.) Reference Model
Models the abstract architectural elements in the domain independent of the technologies, protocols, and products that are used to implement the domain	Describes the important concepts and relationships in the domain focusing on what distinguishes the elements of the domain

- A reference architecture elaborates further on the model to show a more complete picture that includes showing what is involved in realizing the modeled entities

## The OASIS Reference Architecture for SOA... (1/2)

Provides an **architectural description** of the paradigm that is SOA

- Builds off SOA RM and remains technology inert

Very abstract (by design)

- Broad applicably on the scale of the Internet itself

Recognizes the importance of adequately addressing stakeholders and participants and their role in a social structure

- Often overlooked on new SOA initiatives

- Affects issues related to security, policy, and contract management

## Systems and Ecosystems

- Multiple ownership domains
  - No one entity controls everything
- Parallel development, deployment and usage of services
- A medium for people\* to get their business done

*\* We include organizations and robots, but the canonical use case is people using a SOA-based system as a medium to `act at a distance`*

## Three Views of SOA

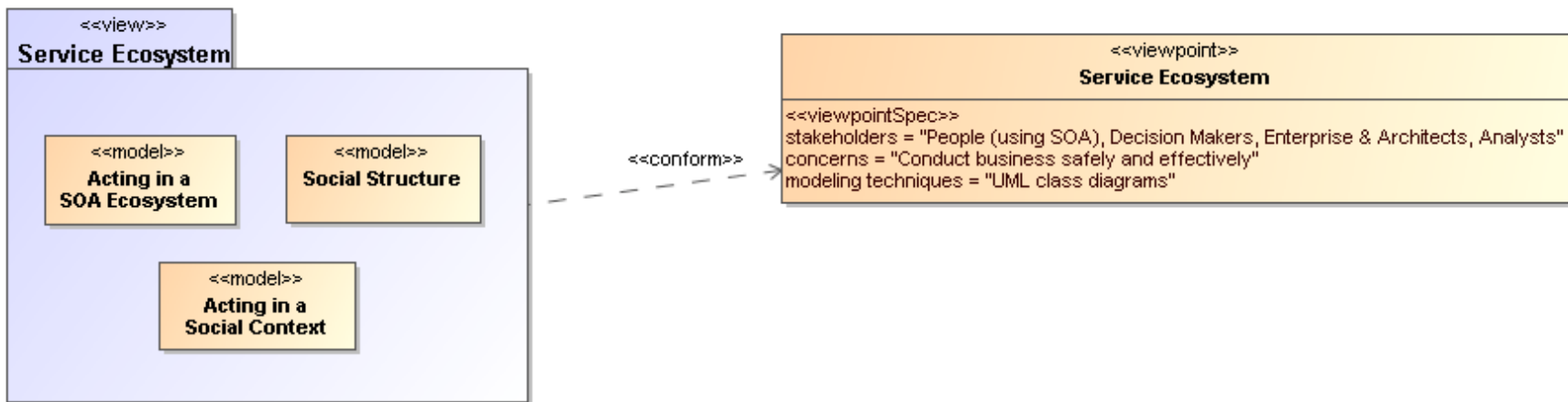
- Service Ecosystem
  - Captures what SOA means for people conducting their business
- Realizing a SOA-based system
  - Deals with the requirements for constructing a SOA
- Owning a SOA-based system
  - What are the issues involved in owning a SOA-based systems

# Viewpoint Specifications

Viewpoint Element	Viewpoint		
	<i>Service Ecosystem</i>	<i>Realizing Service Oriented Architectures</i>	<i>Owning Service Oriented Architecture</i>
Main Concepts	Captures what SOA means for people using it to conduct business.	Deals with the requirements for constructing a SOA.	Addresses issues involved in owning and managing a SOA.
Stakeholders	People (using SOA), Decision Makers, Enterprise Architects, Standards Architects and Analysts.	Standards Architects, Enterprise Architects, Business Analysts, Decision Makers.	Service Providers, Service Consumers, Enterprise Architects, Decision Makers.
Concerns	Conduct business safely and effectively.	Effective construction of SOA-based systems.	Processes for engaging in a SOA are effective, equitable, and assured.
Modeling Techniques	UML class diagrams	UML class, sequence,, component, activity, communication, and composite structure diagrams	UML class and communication diagrams



# Service Ecosystem View

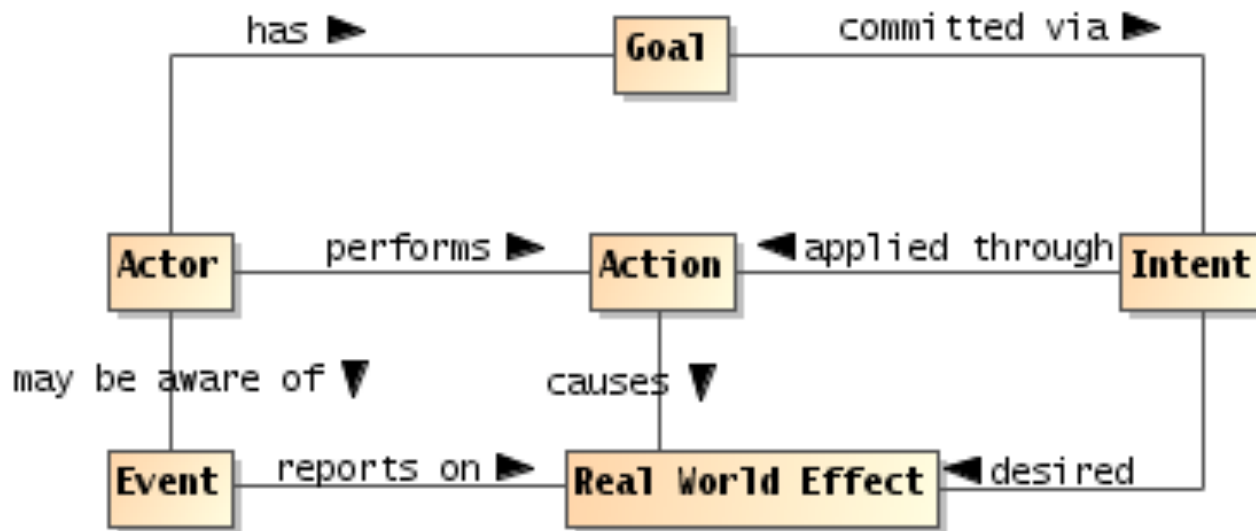


- Action in a SOA Ecosystem  
(i.e., what does it mean to be part of a SOA)
- Social Structure
- Acting in a Social Context

*Lay the foundation for securely and effectively participating in a SOA ecosystem*

# Action

## Part of Acting in a SOA Ecosystem Model



*Action is the application of intent by an actor to achieve a real world effect*

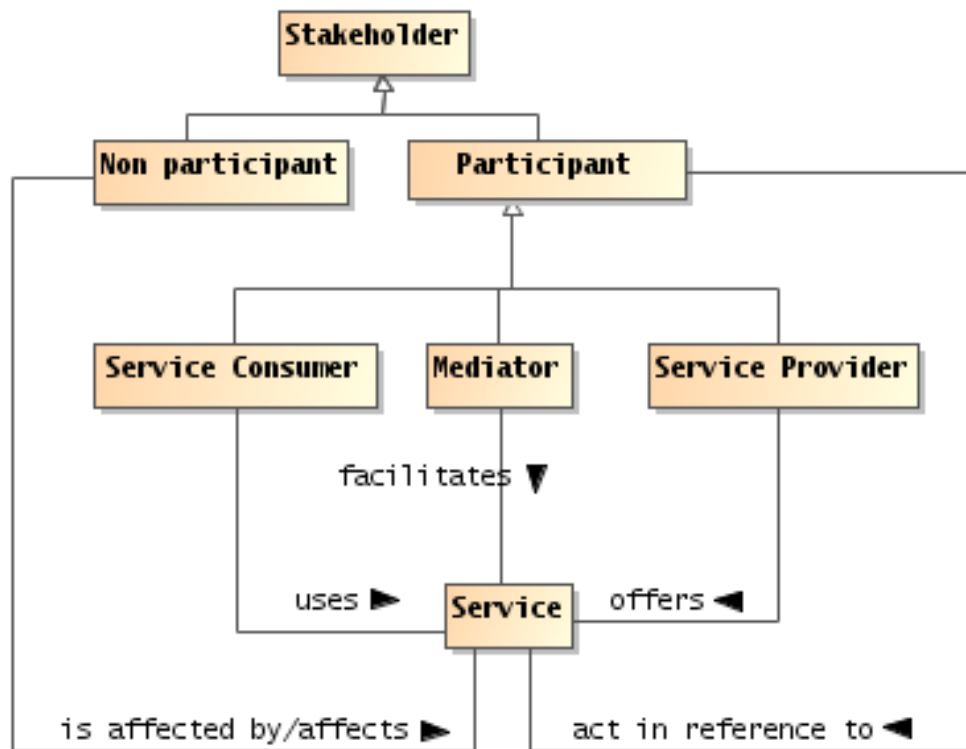
*An actor is an entity that is capable of action*

*A goal is a measurable state of the world that an actor is seeking to establish*

*A Real World Effect is the actual result of performing an action*

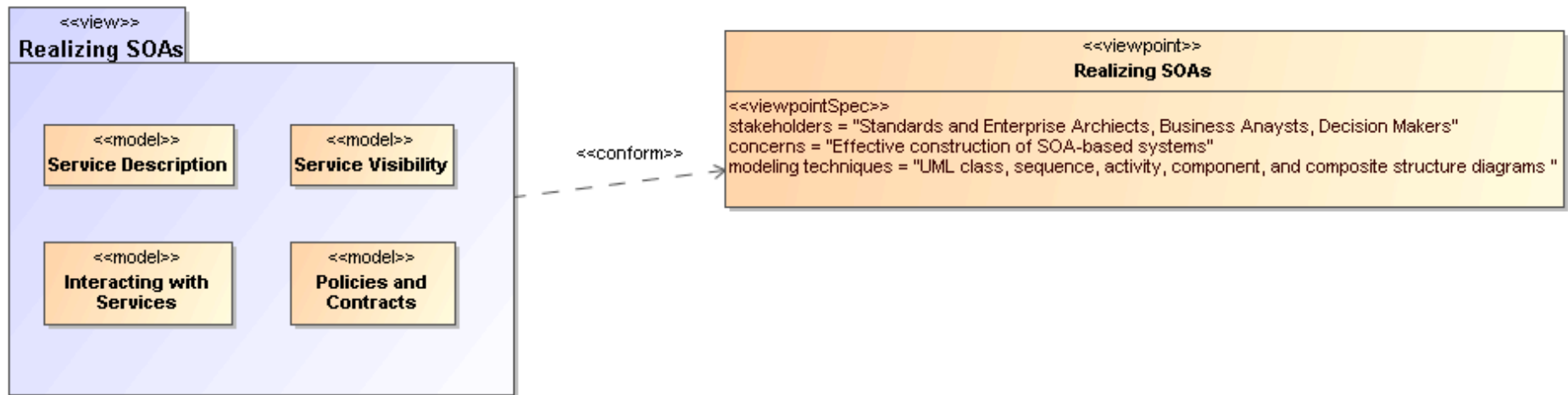
# Stakeholders and Participants

## Part of Social Structure Model



*A **stakeholder** is an individual entity, human or non-human, or organization of entities that has an interest in the states of participants and/or the outcomes of service interactions*

# Realizing SOAs View

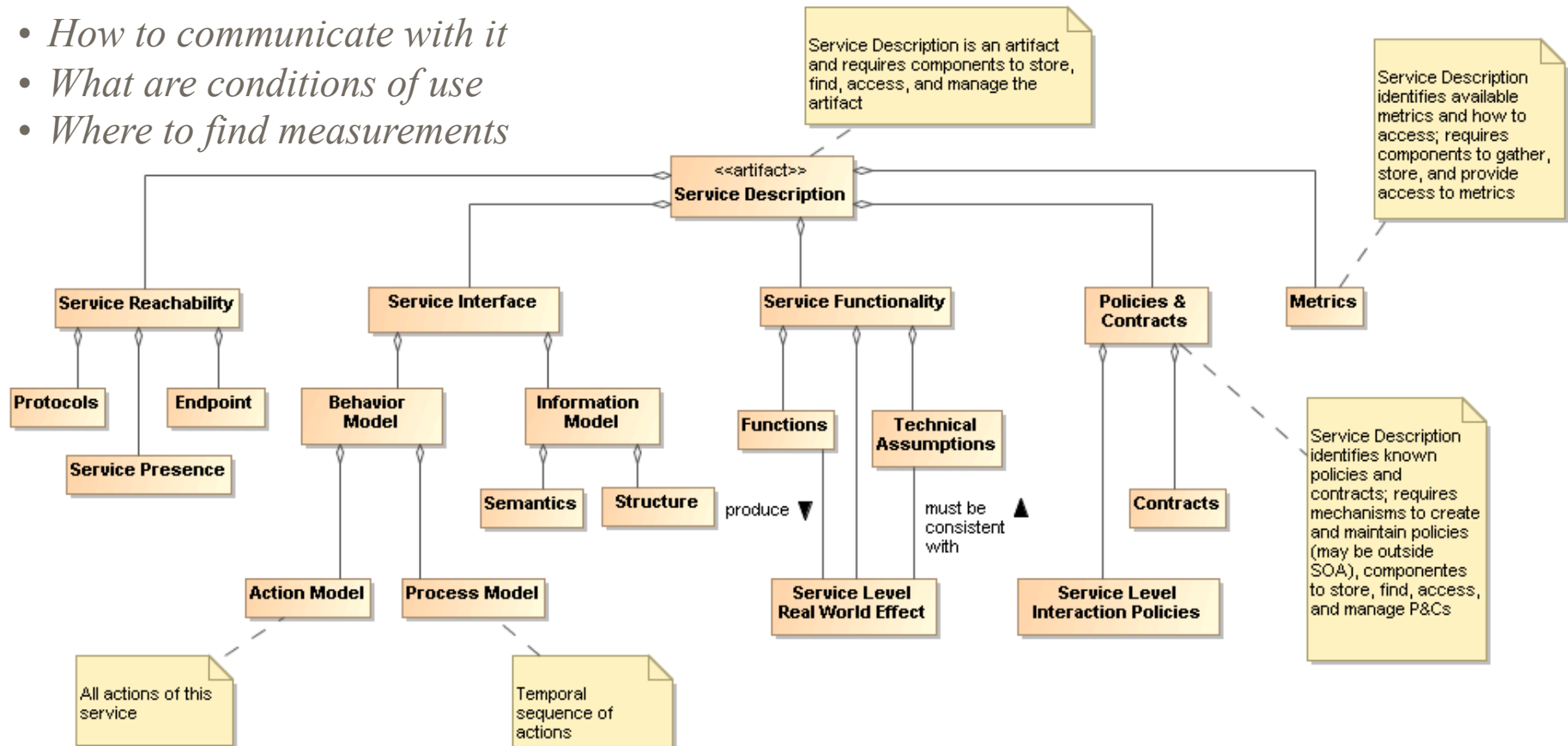


- Descriptions
- Visibility
- Interaction
- Policy & Contract Mechanisms

# Service Description

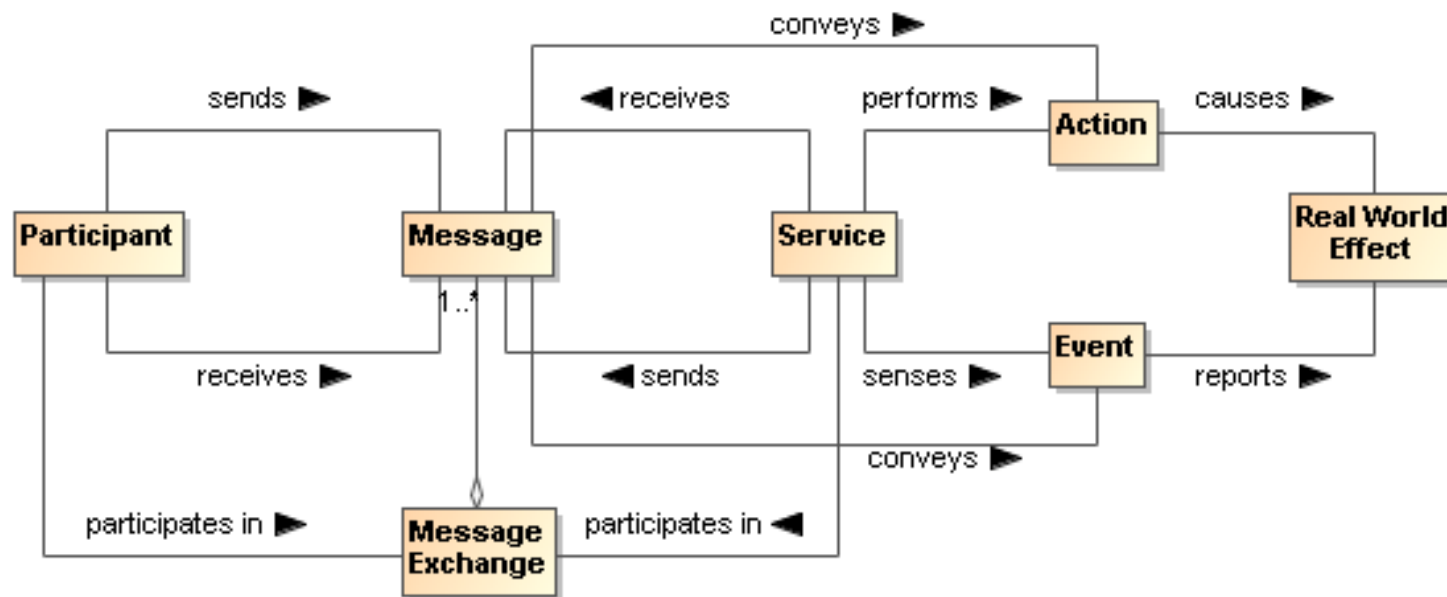
## Part of Service Description Model

- *What it does*
- *How to access it*
- *How to communicate with it*
- *What are conditions of use*
- *Where to find measurements*



# Actions and Events

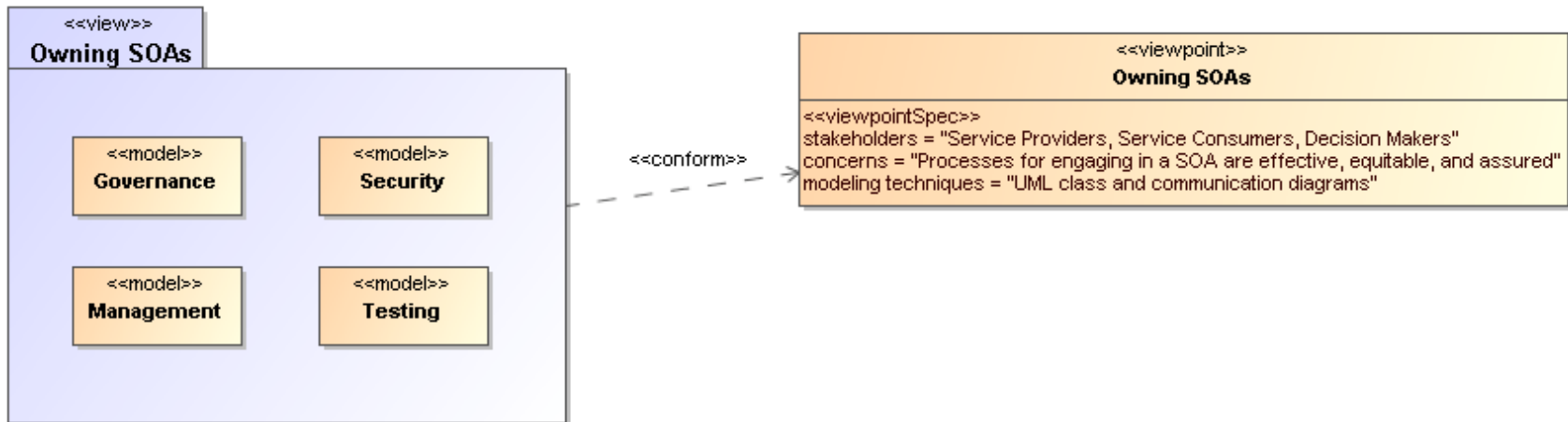
## Part of Interacting with Services Model



*Message exchange is the means by which service participants (or their agents) interact with each other*

*A message conveys either an action or an event*

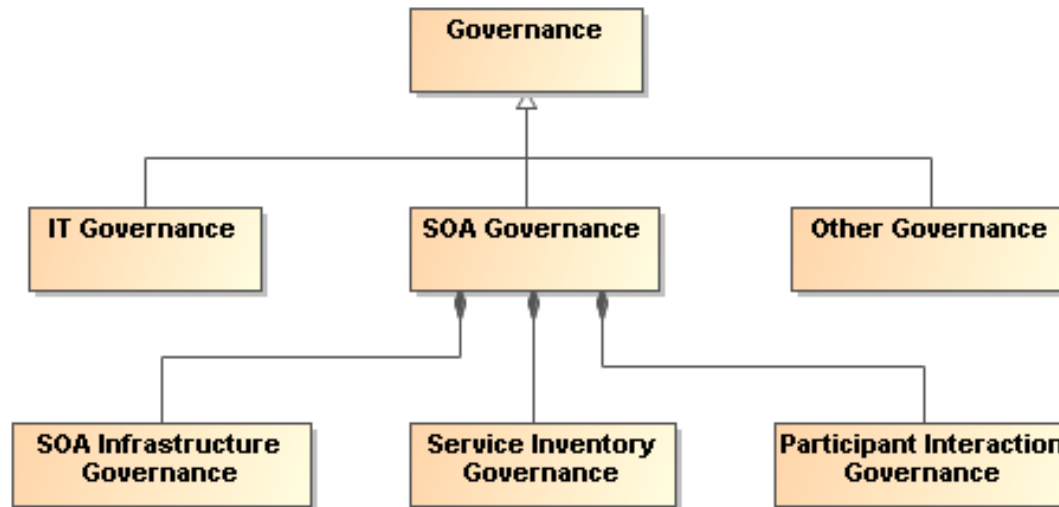
# Owning SOAs View



- Governance of SOA Ecosystems
- Security in a SOA Ecosystem
- Management of SOA Ecosystems
- Testing of SOA Ecosystems (new)

# SOA Governance

## Part of Governance Model

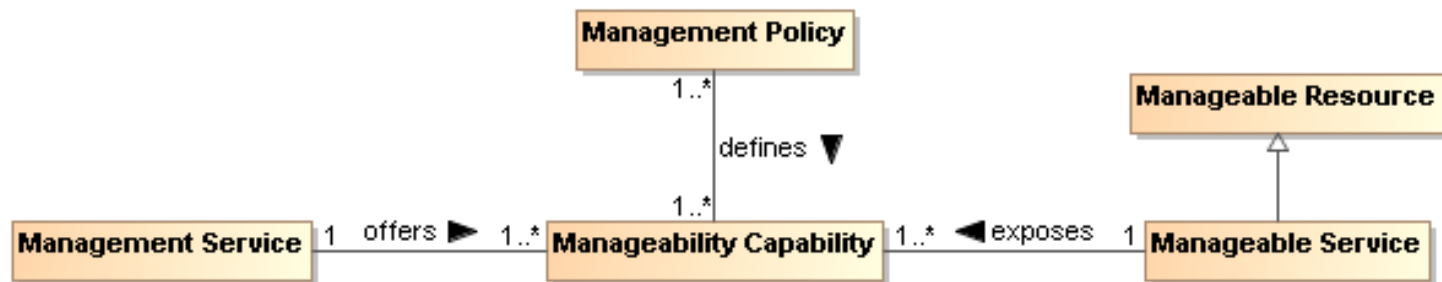


*SOA governance builds off general governance concepts*



# Managing Resources in a SOA

## Part of Management Model



*Management of Services rather than simply IT Management*

## Where we are

- \* Been active since May 2006
  - \* Most of the material is in place
  - \* 100+ page document
- \* Issued first OASIS SOA RA Public Review in early May '08
- \* Emphasis on the relationship between people and the systems they live with

## Challenge & Recommendations

### Challenge:

Putting into practice (“what are we suppose to do with this very abstract RA?”)

### Recommendations:

Use this SOA RA as quasi “checklist” of things to consider when architecting SOA solutions and validate other RAs and concrete architectures

Review and address **Architectural Implications** captured in various architectural models

**Thank you!**

**Q&A**

***Duane's World TV***

***"Wer nicht fragt, bleibt dumm!"***



[www.duanesworldtv.org](http://www.duanesworldtv.org)