

# The Central Role of Registries

Managing SOA Metadata

Stefan Tilkov, [stefan.tilkov@innoq.com](mailto:stefan.tilkov@innoq.com)  
<http://www.innoq.com/blog/st/>



- ▶ Technology Consultancy for Fortune 1000
- ▶ Offices in Zürich & Düsseldorf
- ▶ Founded in 1998/1999
- ▶ Focus on
  - ▶ SOA consulting
  - ▶ Rational Software Production (MDE/MDSD/MDA)

# Stefan Tilkov

- ▶ Managing Director innoQ Deutschland GmbH
- ▶ Principal Consultant
- ▶ Involved in IT Architecture since 199x
- ▶ Personal History with
  - ▶ Distributed Objects: CORBA
  - ▶ Components: J2EE/EJB
  - ▶ SOA: Web Services

# What everyone can agree about: SOA Core Truths

*almost*

# What everyone can agree about: SOA Core Truths

- ▶ **An (at least) company-wide, consistent style of integration**
- ▶ **Services as core concept**
- ▶ **Separation of interface and implementation**

# Some controversial SOA statements

**SOA can be based on any  
technology**



SOA can be based on any  
technology

... but it shouldn't be

- ▶ Reasonable Candidate Technologies for SOA are
  - ▶ Web services
  - ▶ RESTful HTTP or POX
  - ▶ Asynchronous Messaging

**SOA can be built on  
CORBA, RMI, DCOM**

SOA can be built on  
CORBA, RMI, DCOM

... but that's not worth the trouble

- ▶ CORBA, RMI, DCOM all designed for tight coupling
- ▶ Tight coupling is fine if
  - ▶ client and server evolve simultaneously
  - ▶ client and server are not autonomous
  - ▶ both are controlled by the same domain
- ▶ Use it where needed, but don't claim it's SOA

**An ESB is at heart of SOA**

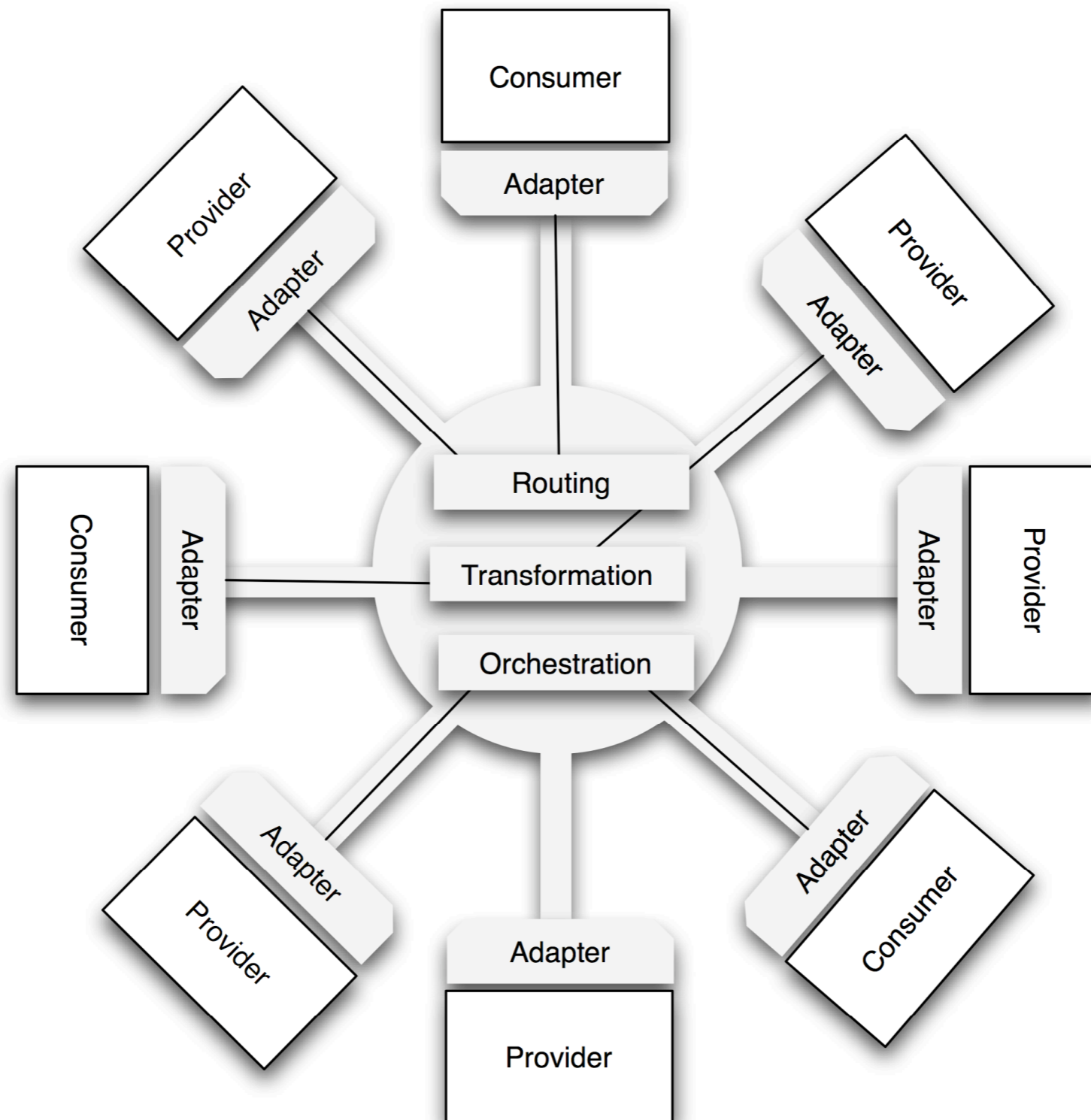
# An ESB is at heart of SOA

... if you believe a vendor's sales representative

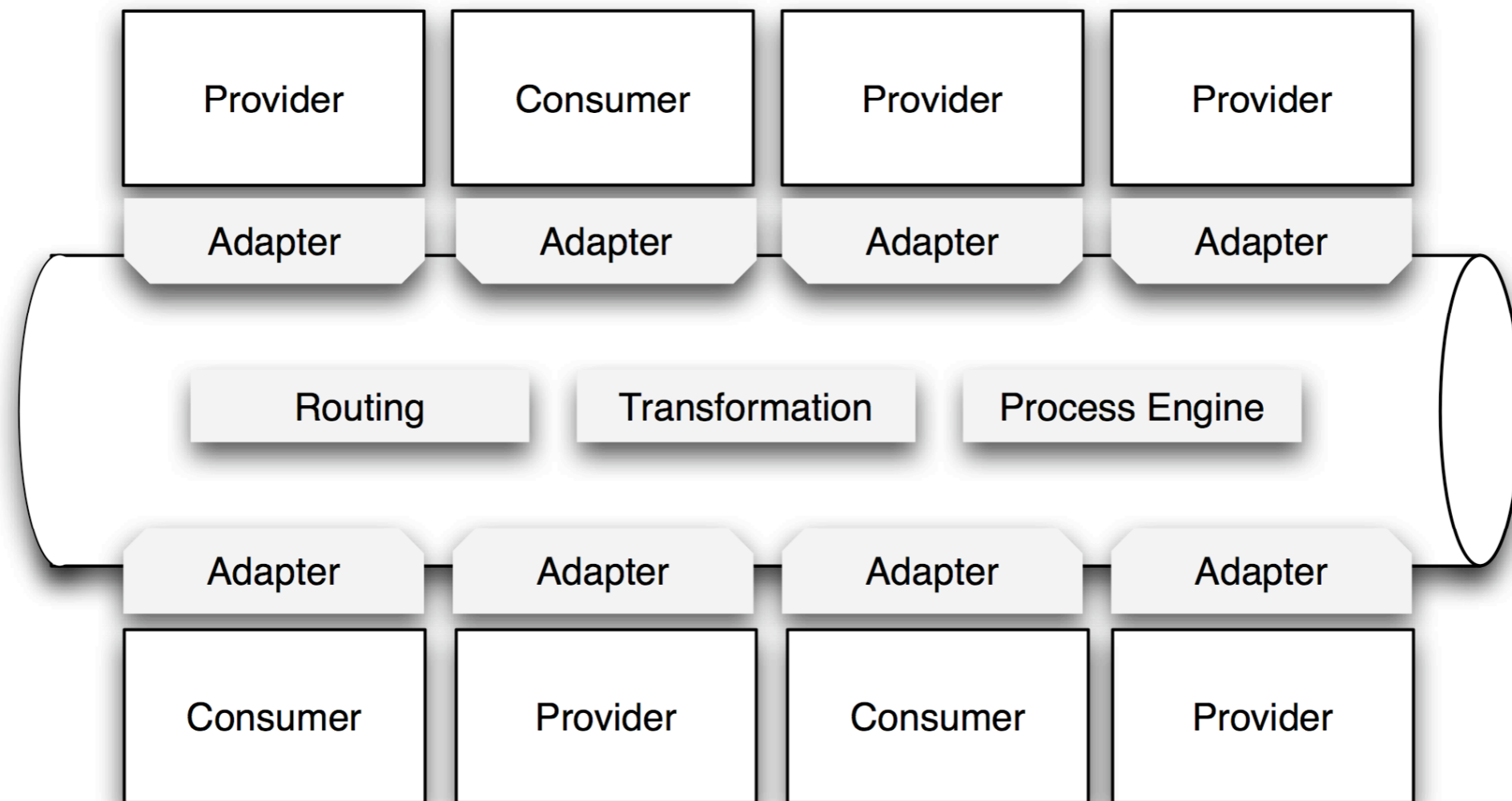
- ▶ SOA should not depend on any product
- ▶ Favor intelligent endpoints over intelligent middleware
- ▶ ESB *as a product* is not 90% of an SOA, despite claims
- ▶ ESB as a virtual concept is perfectly fine



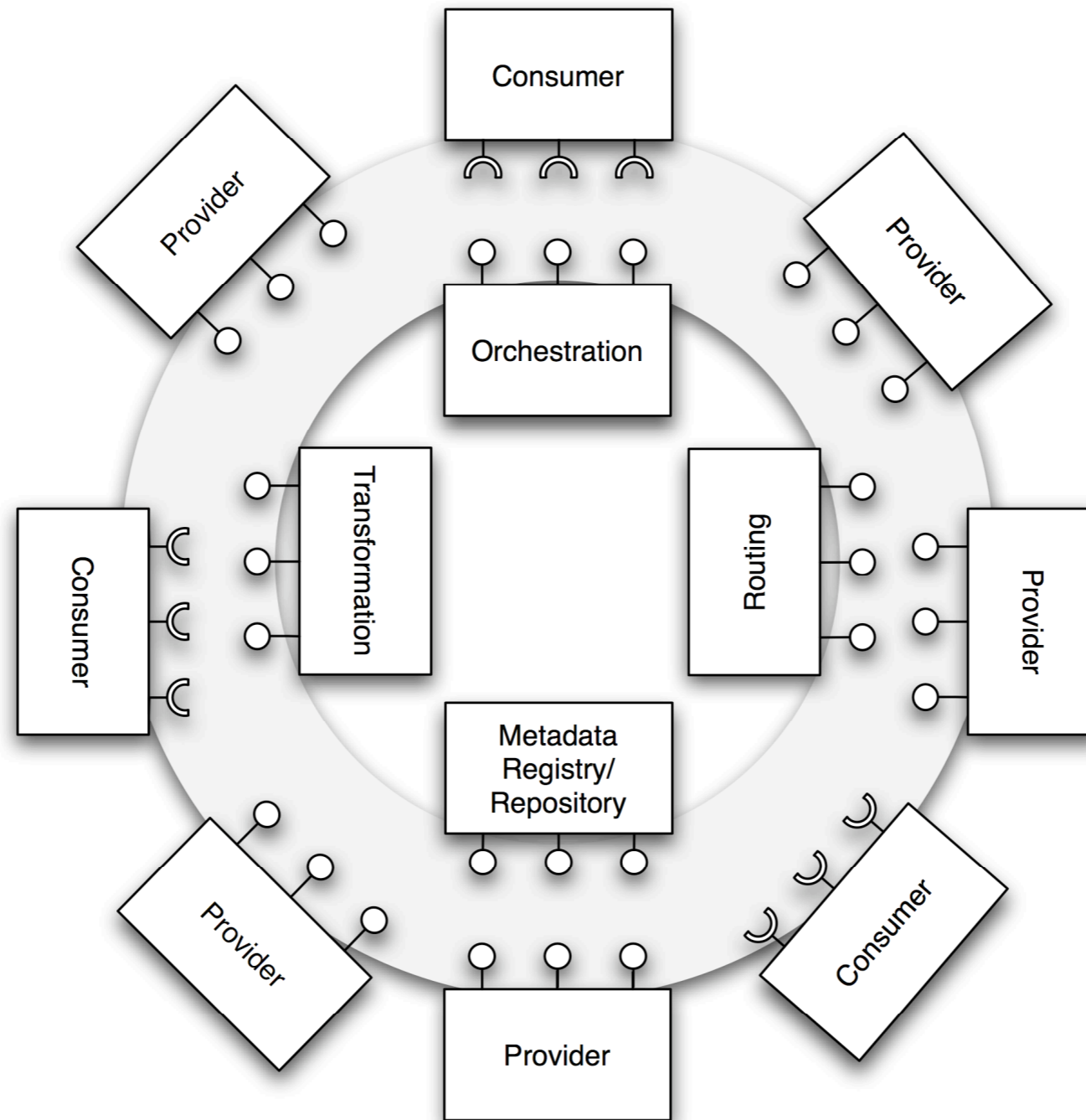
# Hub & Spoke



# (Enterprise Service) Bus



# SOA-based Technical Infrastructure



# More Controversy

**Key SOA Concept**

**Irrelevant/Misleading**

# More Controversy

## **Key SOA Concept**

- ▶ Loose coupling

## **Irrelevant/Misleading**

# More Controversy

## Key SOA Concept

- ▶ Loose coupling
- ▶ XML Document interchange

## Irrelevant/Misleading

# More Controversy

## Key SOA Concept

- ▶ Loose coupling
- ▶ XML Document interchange
- ▶ Asynchronous Messaging

## Irrelevant/Misleading

# More Controversy

## Key SOA Concept

- ▶ Loose coupling
- ▶ XML Document interchange
- ▶ Asynchronous Messaging
- ▶ Standards Support & Vendor Independence

## Irrelevant/Misleading



# More Controversy

## Key SOA Concept

- ▶ Loose coupling
- ▶ XML Document interchange
- ▶ Asynchronous Messaging
- ▶ Standards Support & Vendor Independence

## Irrelevant/Misleading

- ▶ EAI-style OOTB Adaptors

# More Controversy

## Key SOA Concept

- ▶ Loose coupling
- ▶ XML Document interchange
- ▶ Asynchronous Messaging
- ▶ Standards Support & Vendor Independence

## Irrelevant/Misleading

- ▶ EAI-style OOTB Adaptors
- ▶ ESB Products

# More Controversy

## Key SOA Concept

- ▶ Loose coupling
- ▶ XML Document interchange
- ▶ Asynchronous Messaging
- ▶ Standards Support & Vendor Independence

## Irrelevant/Misleading

- ▶ EAI-style OOTB Adaptors
- ▶ ESB Products
- ▶ Protocol independence

# More Controversy

## Key SOA Concept

- ▶ Loose coupling
- ▶ XML Document interchange
- ▶ Asynchronous Messaging
- ▶ Standards Support & Vendor Independence

## Irrelevant/Misleading

- ▶ EAI-style OOTB Adaptors
- ▶ ESB Products
- ▶ Protocol independence
- ▶ IDE Support

# More Controversy

## Key SOA Concept

- ▶ Loose coupling
- ▶ XML Document interchange
- ▶ Asynchronous Messaging
- ▶ Standards Support & Vendor Independence

## Irrelevant/Misleading

- ▶ EAI-style OOTB Adaptors
- ▶ ESB Products
- ▶ Protocol independence
- ▶ IDE Support
- ▶ Stubs & Skeletons

# Non-controversial

A clear strategy for creating, maintaining and using metadata is a key aspect of a successful enterprise SOA and the basis for SOA governance.

# *almost* Non-controversial

A clear strategy for creating, maintaining and using metadata is a key aspect of a successful enterprise SOA and the basis for SOA governance.

# SOA & Governance



governance |'gəvərnəns|

governance |'gəvərnəns|

noun

the action or manner of governing : *a more responsive system of governance will be required.*

archaic sway; control : *what, shall King Henry be a pupil still, **under** the surly Gloucester's **governance** ?*

ORIGIN Middle English : from Old French, from **governer** (see **govern** ).

The act of affecting government and monitoring (through policy) the long-term strategy and direction of an organization. In general, governance comprises the traditions, institutions and processes that determine how power is exercised, how citizens are given a voice, and how decisions are made on issues of public concern.

<http://www.phac-aspc.gc.ca/vs-sb/voluntarysector/glossary.html>

In the context of SOA, governance defines the model to ensure optimal reuse of services and enforcement of corporate policies (eg, business design, technical design, and application security).

[http://www.skywaysoftware.com/resources\\_terminology.htm](http://www.skywaysoftware.com/resources_terminology.htm)

**SOA Governance is the process, model and organization that ensures compliance to the service-oriented architecture as defined for the company.**

# 3 Goals:

1.

# Architectural Control

2.

# Subsidiarity Principle

<http://en.wikipedia.org/wiki/Subsidiarity>



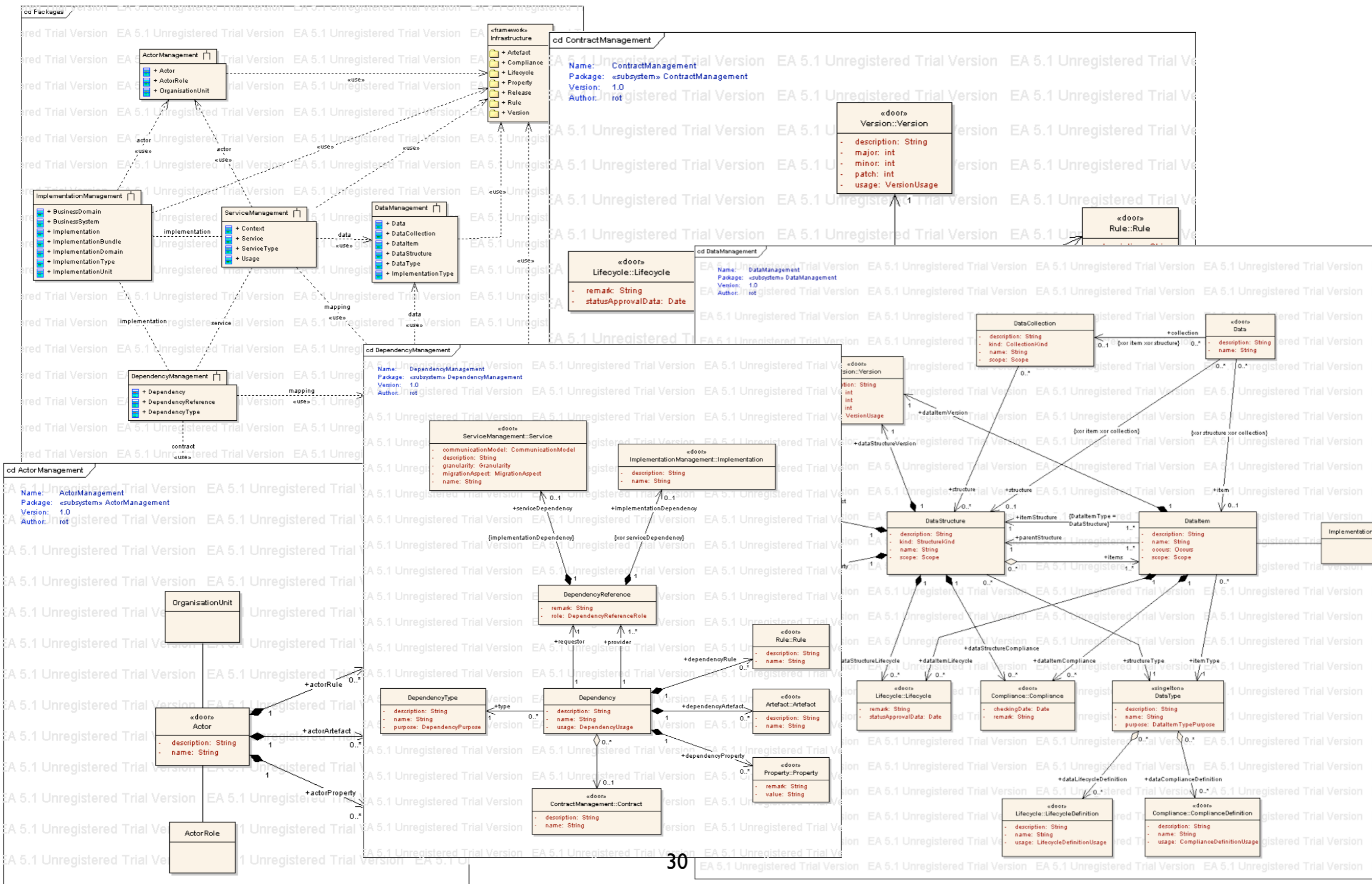
# 3. Knowledge

# SOA & Metadata

# SOA Metadata Examples

- ▶ Service descriptions
- ▶ Service status
- ▶ Service owner
- ▶ Domains
- ▶ Service interface
- ▶ Interface documents
- ▶ BPEL Scripts (?)
- ▶ Reusable document components
- ▶ Policies
- ▶ Contracts
- ▶ Addresses
- ▶ Organization units
- ▶ Versions

# innoQ SOA Metamodel: Excerpt



An integrated SOA registry/  
repository can be used as the  
single point of information about  
SOA metadata.

# Registry vs. Repository

Registries store

- ▶ references (pointers)
- ▶ metadata

Repositories store

- ▶ actual data
- ▶ metadata

One person's data is the other person's metadata

# UDDI

- ▶ UDDI = Universal Description, Discovery and Integration
- ▶ Standard for registry, not repository
- ▶ A must-have feature for interop reasons - but not sufficient
- ▶ Every solution requires both registry and repository
- ▶ There is no single accepted repository standard

# Usage Scenarios

## Design & Development

- ▶ What services/operations are available?
- ▶ What is the message format?
- ▶ Which versions? (What changes?)
- ▶ Who is responsible?

## Runtime

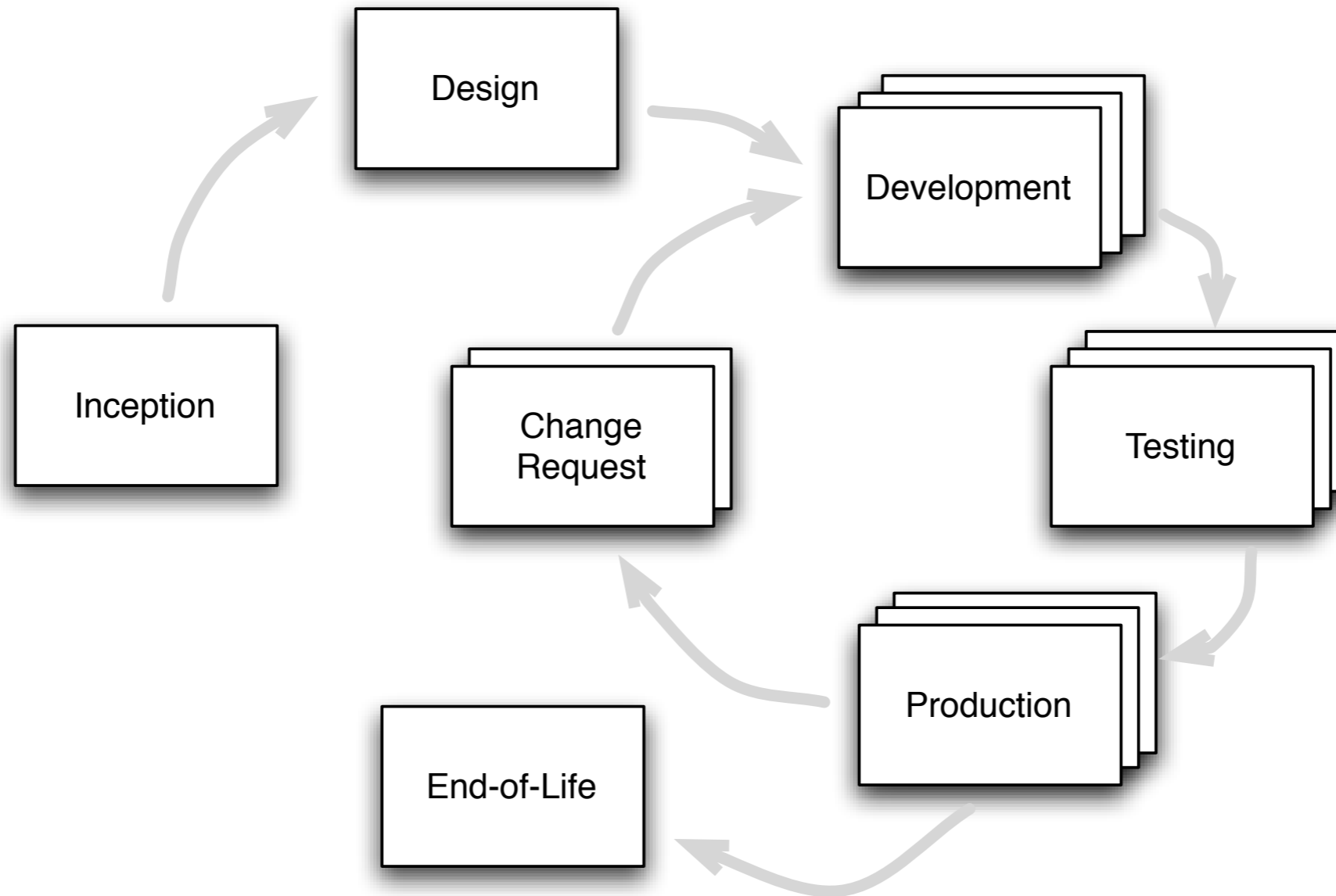
- ▶ What is the service endpoint (address)?
- ▶ Is a service running?
- ▶ Can consumer and provider policies be matched appropriately?

## Governance

- ▶ Who uses which service?
- ▶ What is the impact of change?
- ▶ Are services reused?
- ▶ Is documentation & usage compliant?
- ▶ Are SLAs being met?

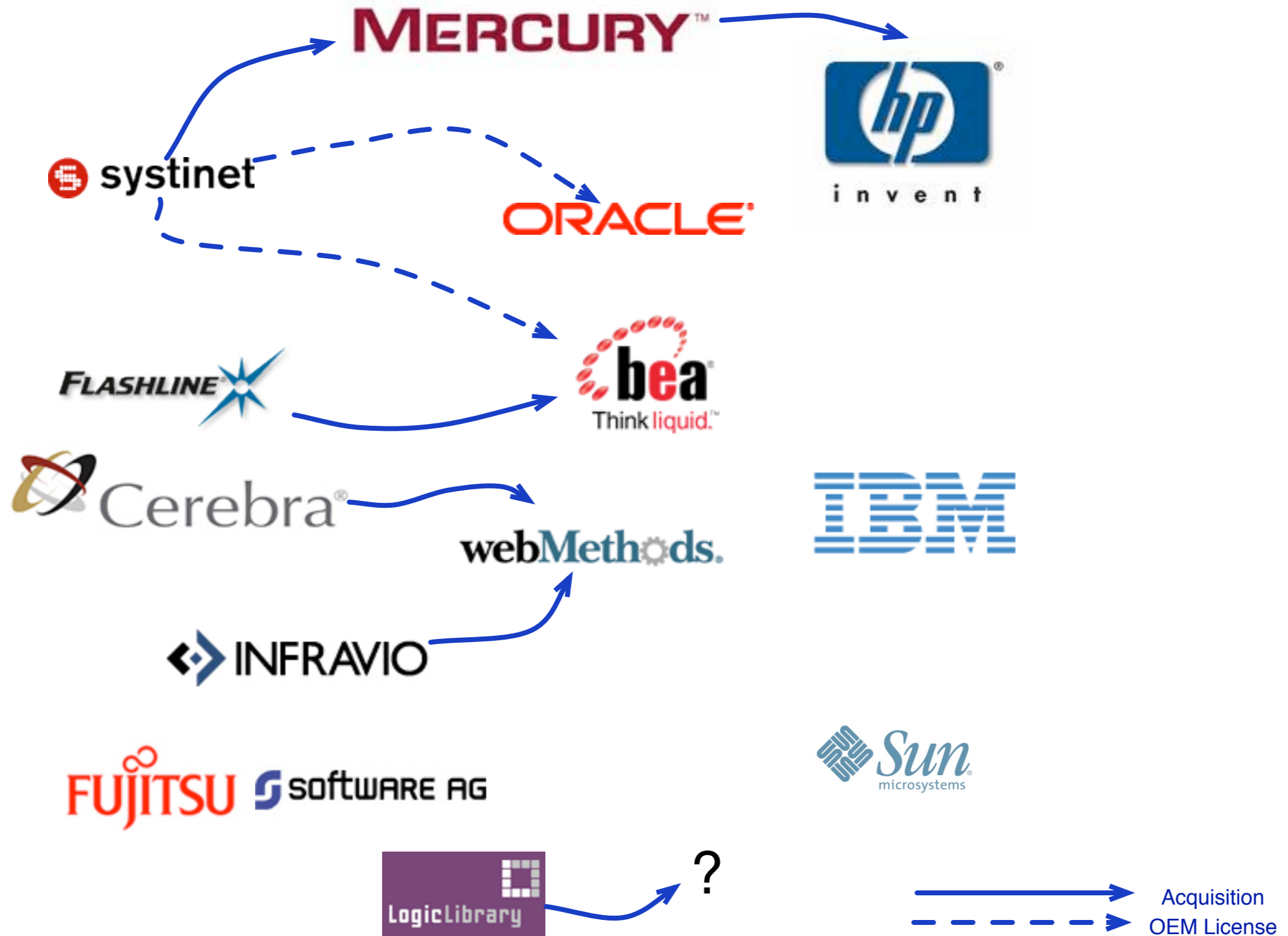


# Service Life cycle Management



# Solutions

# Vendors



# Reg/Rep Products

<b>Vendor(s)</b>	<b>Product</b>
Systinet Mercury HP	Systinet 2 <a href="http://www.systinet.com">http://www.systinet.com</a>
Software AG Fujitsu	CentraSite <a href="http://www.softwareag.com/Corporate/products/centrasite/">http://www.softwareag.com/Corporate/products/centrasite/</a>
Infravio webMethods	X-Registry <a href="http://www.infravio.com/products/">http://www.infravio.com/products/</a>

# Interoperability Initiatives

Governance  
Interoperability  
Framework (GIF)



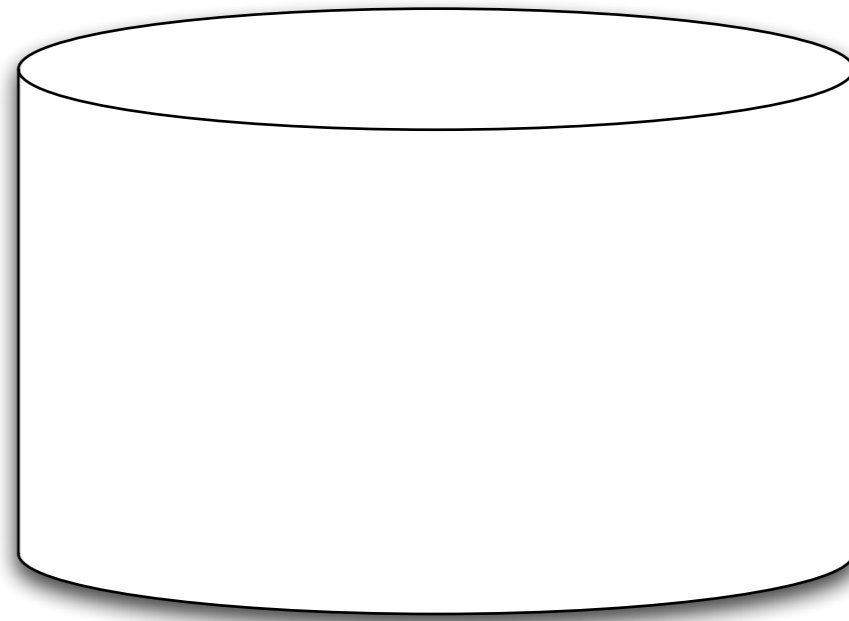
SOA Link



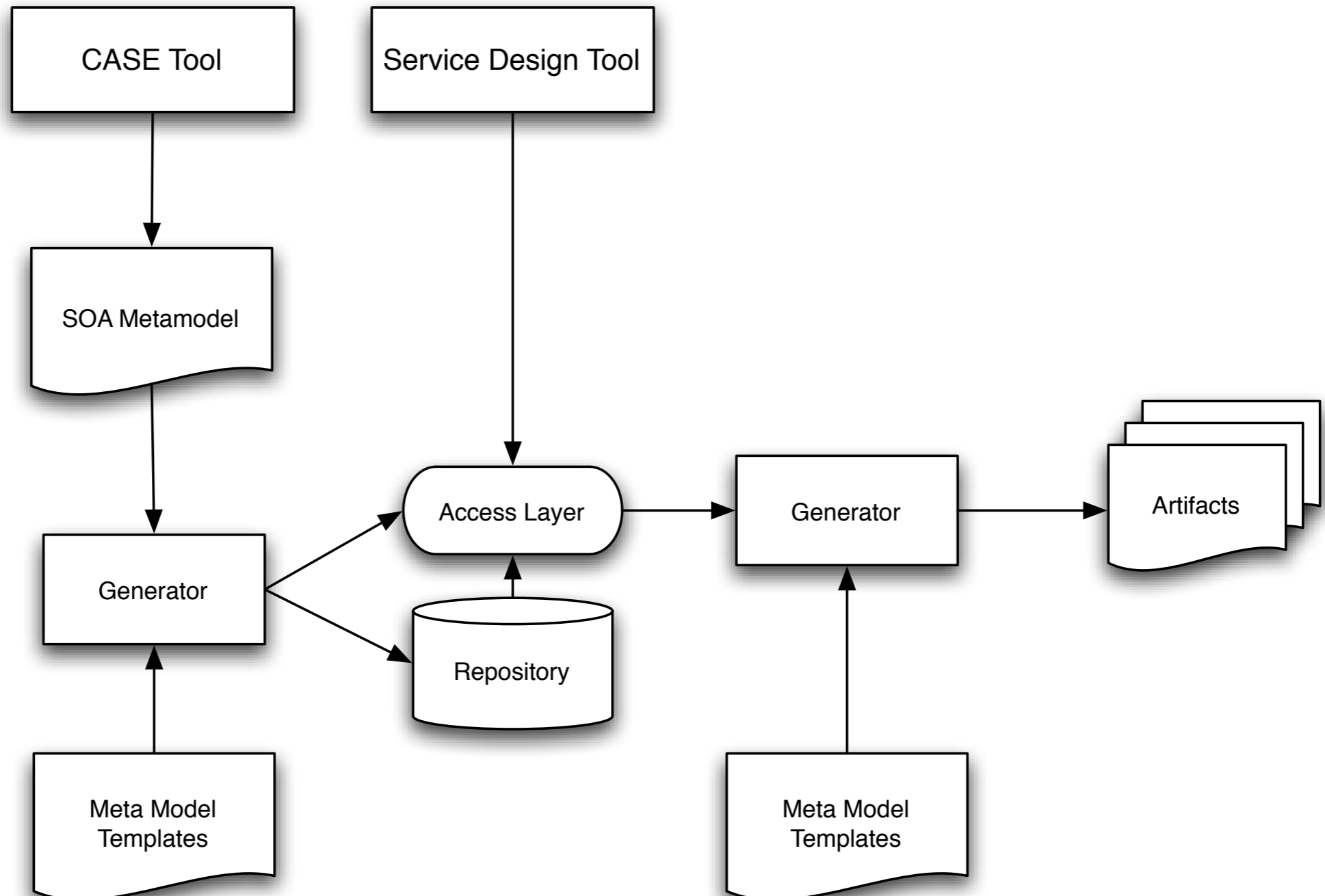
CentraSite  
Community

Systinet/Mercury/HP	X		
Infravio/webMethods		X	
Software AG/Fujitsu			X
Amberpoint	X	X	X
Composite Software	X	X	
Forum Software		X	X
HP	X	X	
Layer 7	X	X	X
Mindreef		X	X
Reactivity	X	X	X
NetIQ		X	
Parasoft		X	X
	Service Integrity, MetaMatrix, ...	webMethods, Intalio, IONA, JBoss, LogicBlaze, ...	IDS Scheer, arcplan, Seagull, VORDEL, ...

**What's at the core of a  
repository?**



# RDBMS-based Reg/Rep





# Decentralized Web Solution

- ▶ Ubiquitous protocol for resource access: HTTP
- ▶ RESTful (rely on GET, PUT, POST, DELETE)
- ▶ Decentralized
- ▶ Federated
- ▶ XQuery over HTTP
- ▶ RSS, ATOM (Syndication & Publishing)

# Challenges

- ▶ Integration with CMDB & Portfolio Management
- ▶ Overlap with configuration management during deployment
- ▶ Interfacing with externally controlled services

# Conclusion

- ▶ If you do SOA, you have to manage your metadata
- ▶ You don't need to do everything at once
- ▶ A product is possibly more a problem than a solution

# Mandatory Steps

- ▶ Define your metadata and metamodel
- ▶ Make sure you have a process in place
- ▶ Balance general applicability with YAGNI lessons
- ▶ Decide on some way of IT support
- ▶ Decouple physical and logical addresses

# Purely optional

- ▶ Evaluate and buy products
- ▶ Develop your own large-scale metadata repository
- ▶ Introduce advanced and/or runtime lookups

The single most important statement:  
**You can't buy SOA**

# Thank you!

## Questions?

innoQ Deutschland GmbH  
Halskestraße 17  
D-40880 Ratingen  
Tel +49 2102 77 1620  
Fax +49 2102 77 1601

innoQ Schweiz GmbH  
Gewerbestrasse 11  
CH-6330 Cham  
Tel +41 41 743 01 11  
Fax +41 41 743 01 19

<http://www.innoq.com>