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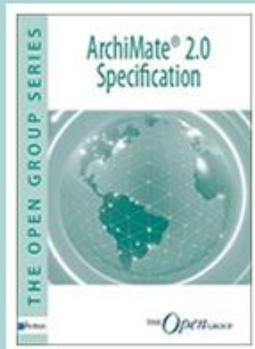
a.walker@opengroup.org

stuart.macgregor@opengroup.org

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THE *Open* GROUP



Launching January 31: ArchiMate® 2.0, an Open Group Standard - now fully aligned with TOGAF®

1 2 3



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Jan 30 - Feb 3, 2012



The Open Group Conference, Cannes
Cannes, France
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NEWS: The Open Group Publishes New Standards for SOA and Cloud

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Our standards ensure openness, interoperability and consensus.



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Something to contribute that would be of value to all members? Submit it to the *'Materials: Contribution'* area (bel

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The Architecture Forum Google Calendar

Today   **Monday, October 24** ▾

Monday, October 24

8:00am [Adaptability of TOGAF -- TOGAF for SME Knowledge Sharing](#)

Wednesday, October 26

7:00am [TOGAF Next \(ADM Review\)](#)

10:00am [TOGAF BIAN WG](#)

Friday, November 4

9:00am [TOGAF for SME Working Group](#)

Wednesday, November 9

7:00am [TOGAF Next \(ADM Review\)](#)

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Enterprise Transformation and the Role of Open Standards

- ❑ SAN FRANCISCO, January 17, 2012 — The Open Group announced the availability of two new industry standards that enable businesses to effectively integrate fundamental elements of SOA and Cloud Computing into an Enterprise Architecture.
- ❑ At this month's EA Forum, Clive Hatton will discuss what these standards mean for anyone implementing SOA or Cloud Computing. The presentation will include his argument for why vendor-neutral standards are best, and how vendor-specific standards will lead you astray.
- ❑ Clive is a senior consultant at Real IRM. He has consulted on the architecture in SOA projects since 2006. He participates in The Open Group's SOA Work Group, presents at local and international conferences and has been quoted in a number of local publications.

New Standards for SOA and Cloud - The Open Group

Clive Hatton

January 2012

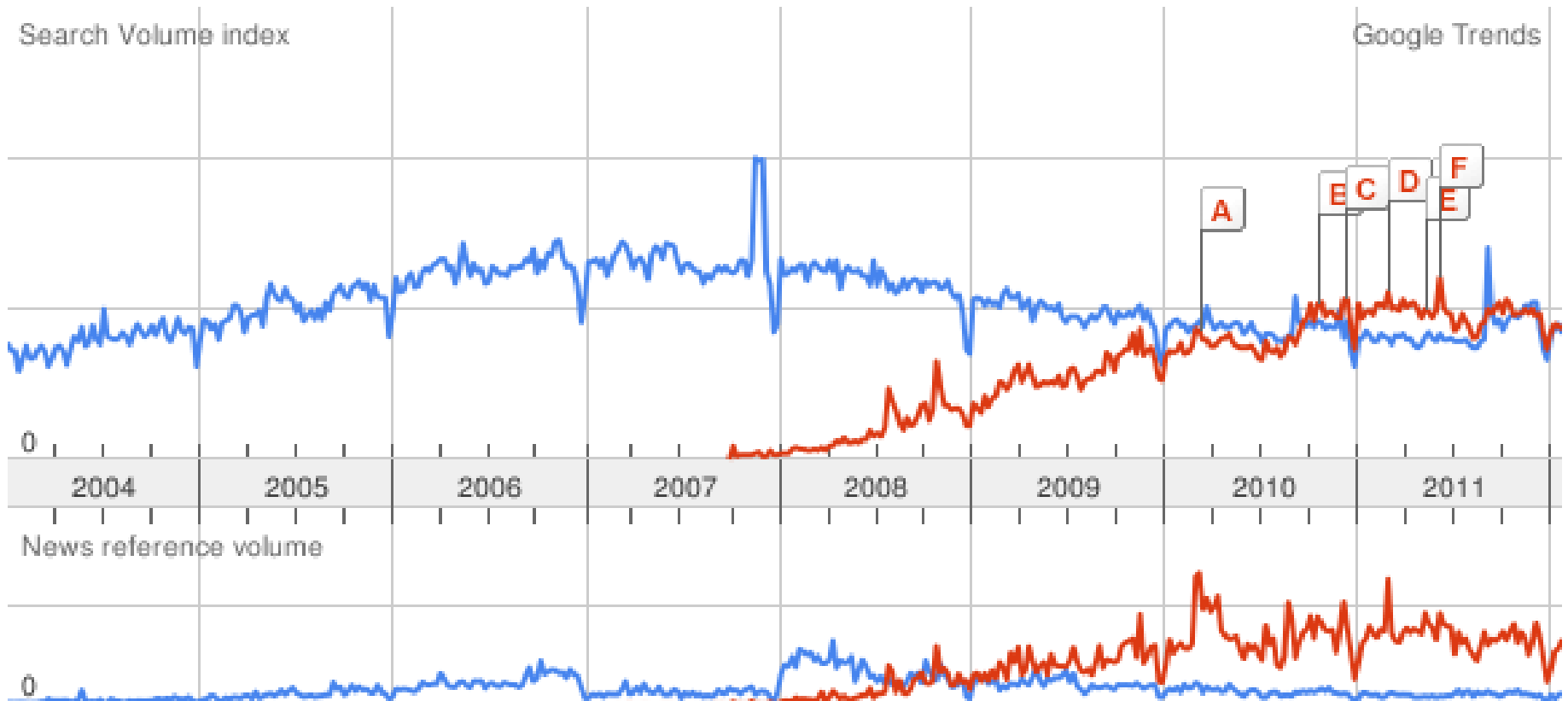
The Open Group Publishes New Standards for SOA and Cloud

- ❑ SAN FRANCISCO, January 17, 2012 — The Open Group today announced the availability of two new industry standards that enable businesses to effectively integrate fundamental elements of SOA and Cloud Computing into a solution or Enterprise Architecture. The new standards are: SOA Reference Architecture (SOA RA), a blueprint for creating and evaluating SOA Solutions; and the Service-Oriented Cloud Computing Infrastructure Framework (SOCCI), the first Cloud standard of The Open Group, which outlines the concepts and architectural building blocks necessary for infrastructures to support SOA and Cloud initiatives.
- ❑ Additionally, The Open Group has released updates to The Open Group Service Integration Maturity Model (OSIMM), which has now been ratified as an ISO and IEC (ISO/IEC 166880) International Standard. OSIMM gives organizations a common model for developing a roadmap for achieving the right level of service adoption to meet business objectives.

Google Trends

soa

cloud computing



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Abstractions and Illusions

Service Oriented Architecture

Cloud Computing

Standards

The SOA Reference Architecture

The SOCCI Framework

OSIMM

Illusions

The SOA Illusion

The Cloud Computing Illusion

The Service-Oriented Cloud Computing Illusion

Abstractions and Illusions

SOA and Cloud Computing are *abstractions*, creating the *illusion* that things are simple, whereas under the covers they are much more complicated.

Other Examples of Abstractions in IT

Windows creates the illusion of multitasking.

Siri on the iPhone 4S creates the illusion of intelligence.

Virtual Reality creates the illusion of reality in games.

Abstractions hide complexity, they don't eliminate it

RDS is an abstraction that creates the illusion of push button station selection, with continuous signal, regardless of location.

It hides the complexity of frequency tuning when moving between transmitters.

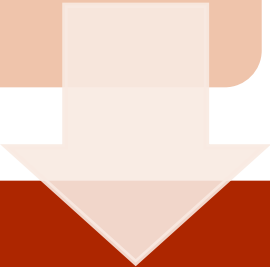
Illusions are Cool, but...

Sometimes the abstraction can't hide the complexity,
and the illusion fails.

Searching for station.....


Law of Conservation of Complexity

“Every system must have an inherent amount of irreducible complexity.”




“The further down in the software hierarchy that you push the complexity, the less work has to be done by everybody above.”

Essential and Accidental Complexity

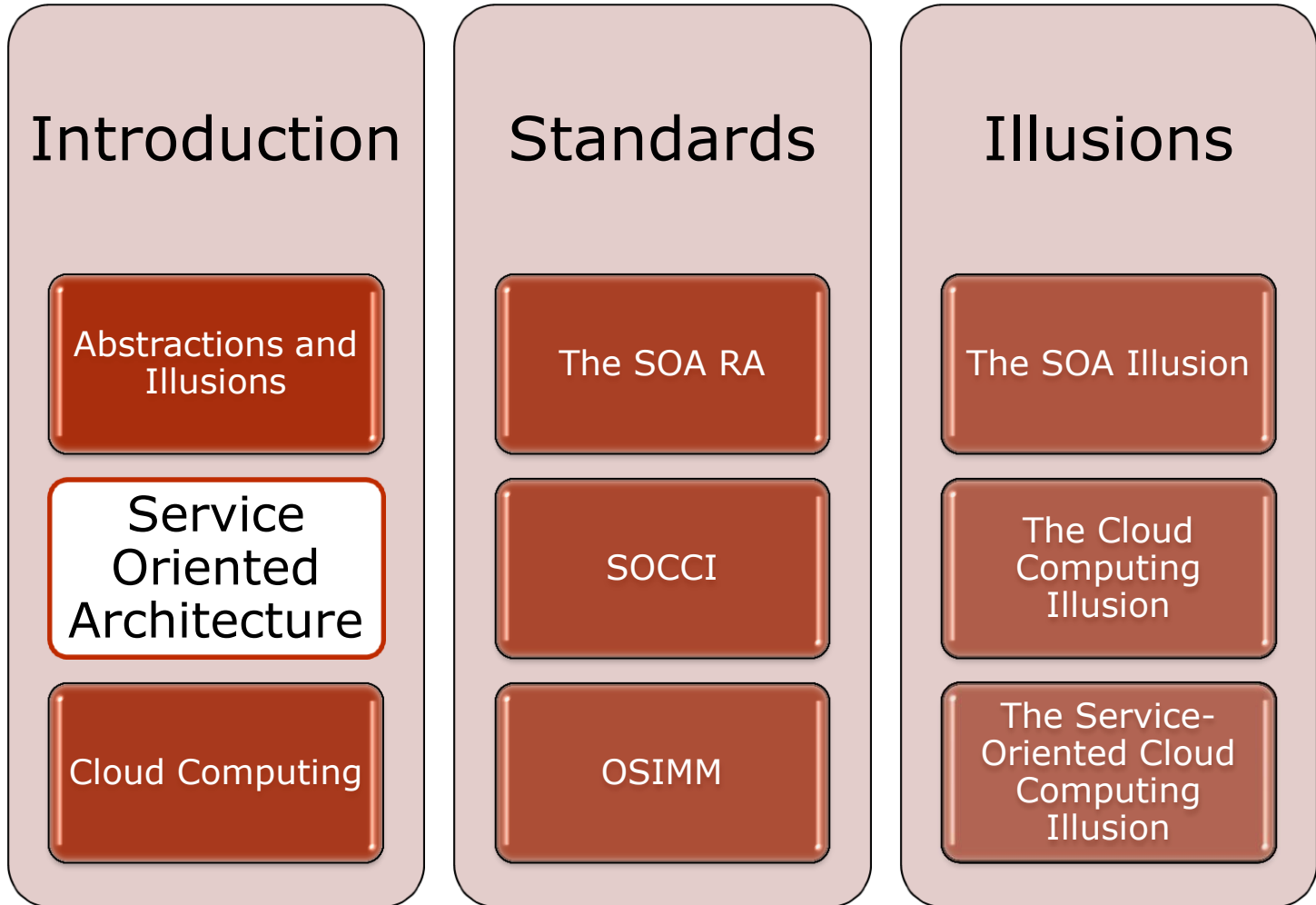


Essential complexity is inherent in an organisation or system.



Accidental complexity is not essential to the problem to be solved and can be eliminated.

Content



Definition of SOA

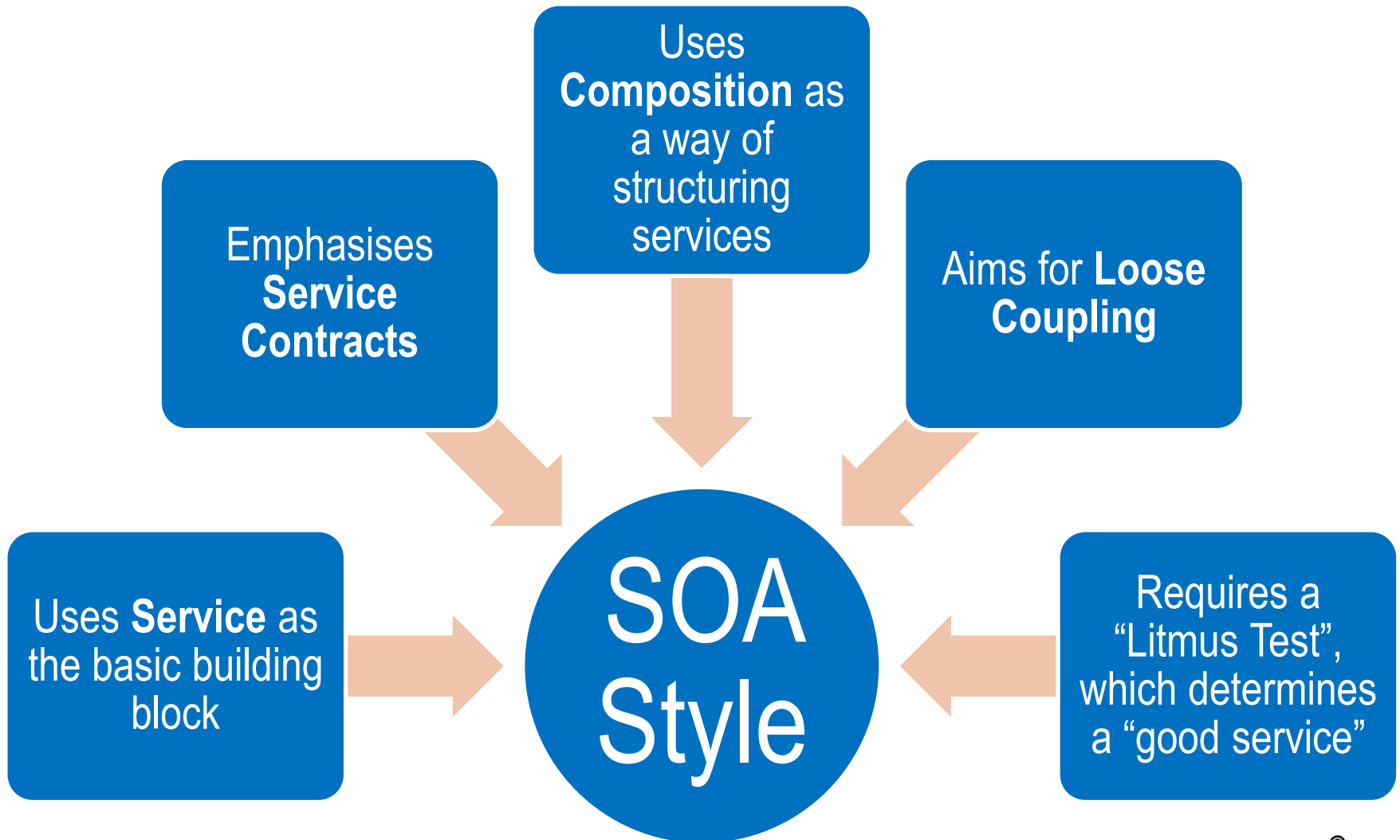
An ***architectural style*** that supports service-orientation. Service-orientation is a way of thinking in terms of services and service-based development and the outcomes of services.

- The Open Group

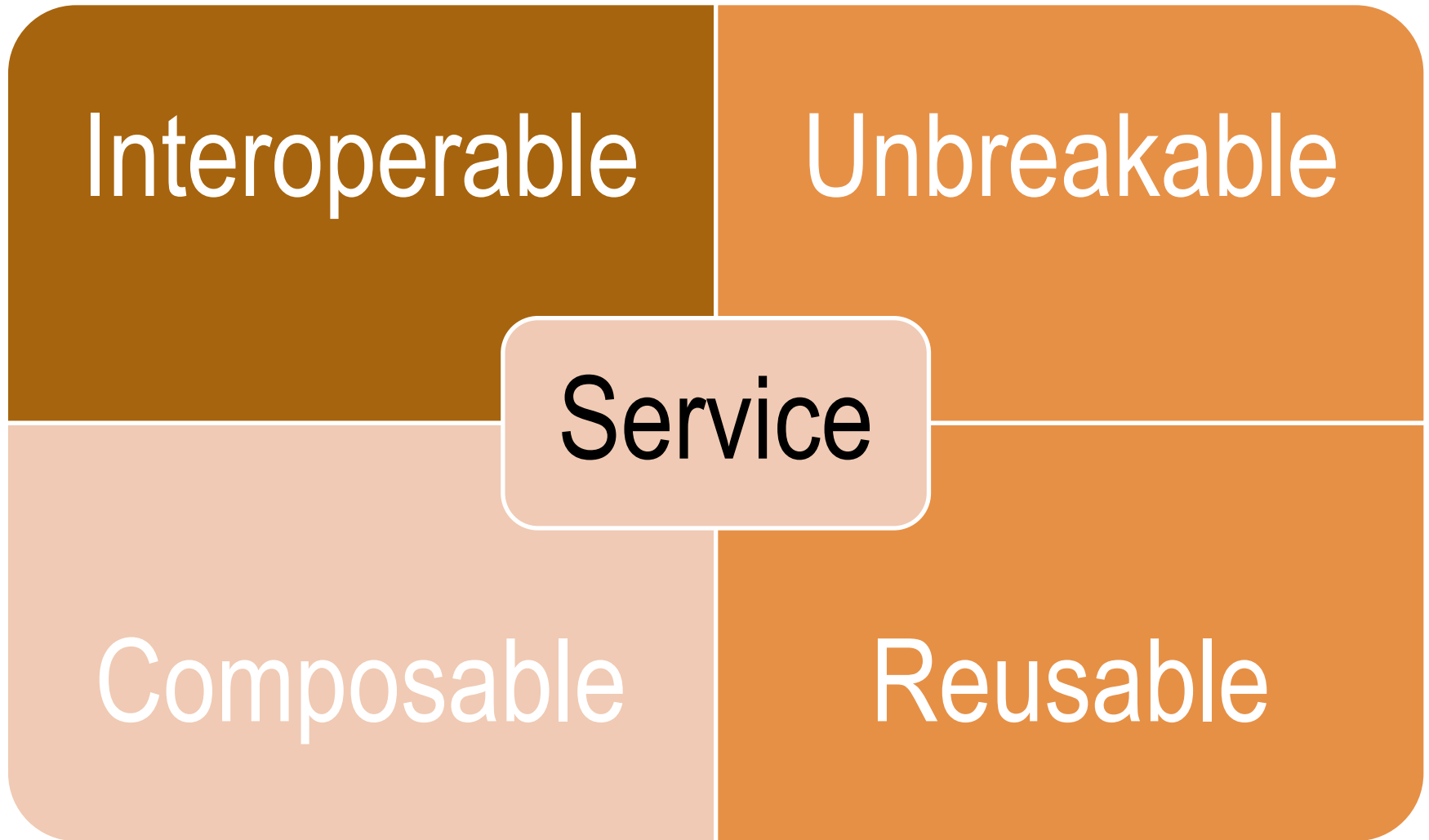
Architectural Style

the combination of distinctive features in which architecture is performed or expressed.

Service Oriented Architectural Style



A Good Service Should Be



Definitions of Service (Economic)

Service (economic theory)

A type of economic activity that is intangible, is not stored and does not result in ownership.

Services are one of the two key components of economics, the other being goods.

A service is a means of delivering value to customers by facilitating outcomes customers want, without the cost and risk of ownership.

Definitions of Service (SOA)

SOA
Service
(The
Open
Group)

A logical representation

of a repeatable business activity

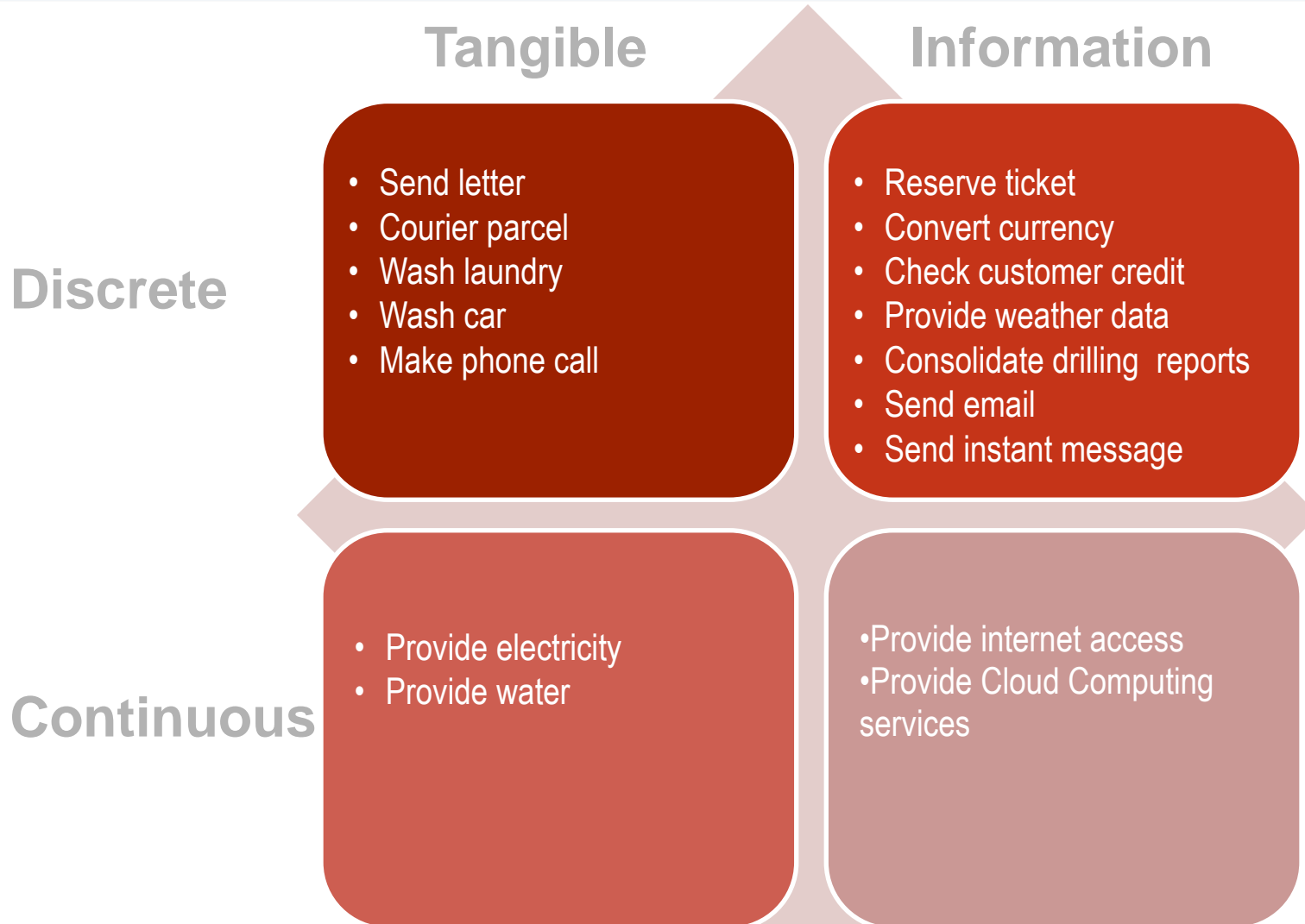
that has a specified outcome.

Is self-contained.

May be composed of other services.

Is a “black box” to consumers of the service.

Examples of Services



Definitions of Service and Process

SOA Service (The Open Group)

A logical representation of a repeatable activity that has a specified outcome.

Is self-contained.

May be composed of other services.

Is a “black box” to consumers of the service.

Business Process (Sharp & McDermott)

A collection of interrelated activities,

initiated in response to a triggering event,

which achieves a specific, discrete result for the customer and other stakeholders of the process

Difference between Service and Process

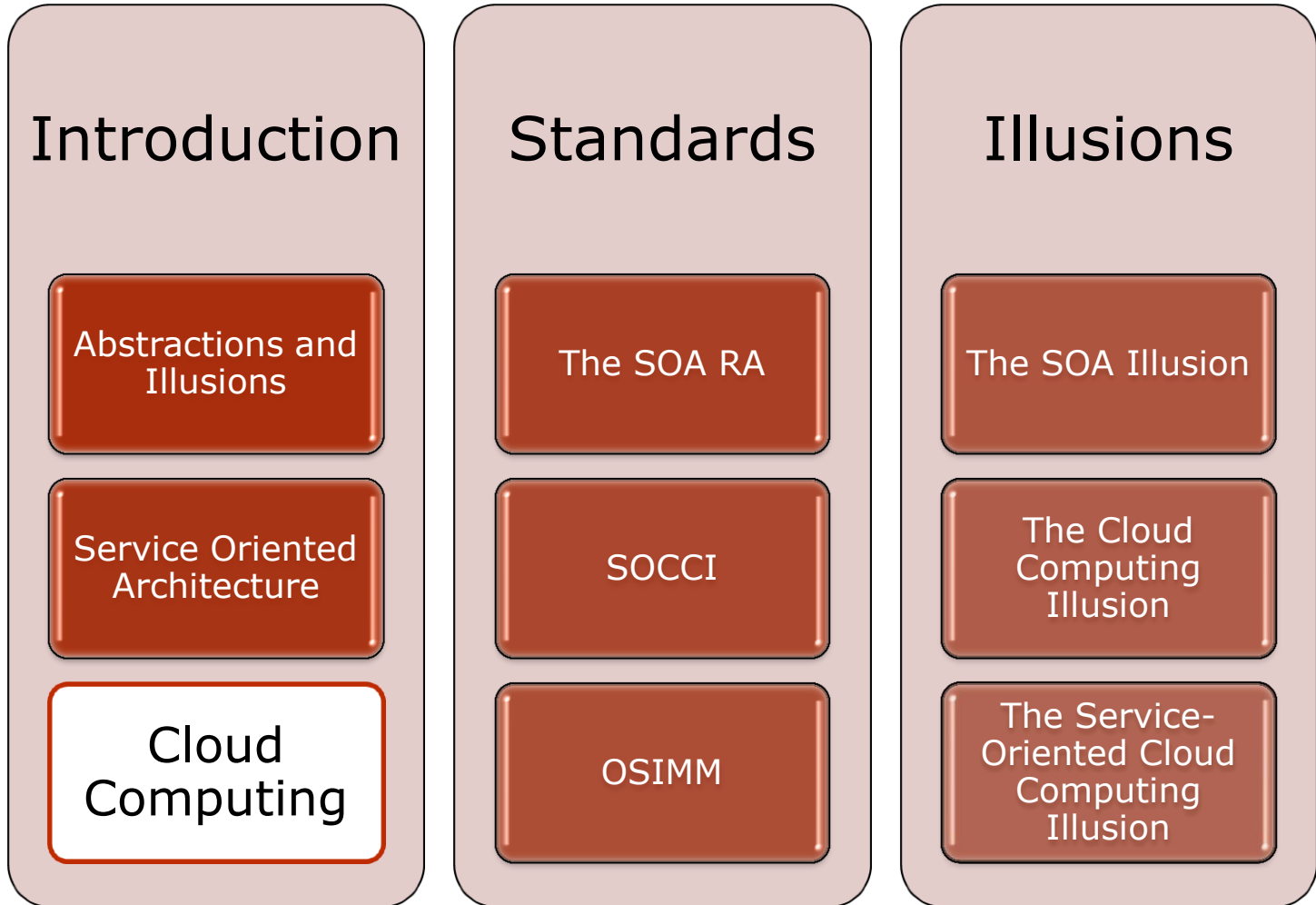
A service is a process represented in such a way that it can easily be

Outsourced to a service provider	Moved to another part of the organisation	Centralised as a shared service	Decentralised but standardised	Distributed for load sharing	Automated using any technology	Reused by other services and processes
----------------------------------	---	---------------------------------	--------------------------------	------------------------------	--------------------------------	--

without the user or consumer of the process being aware of the change.

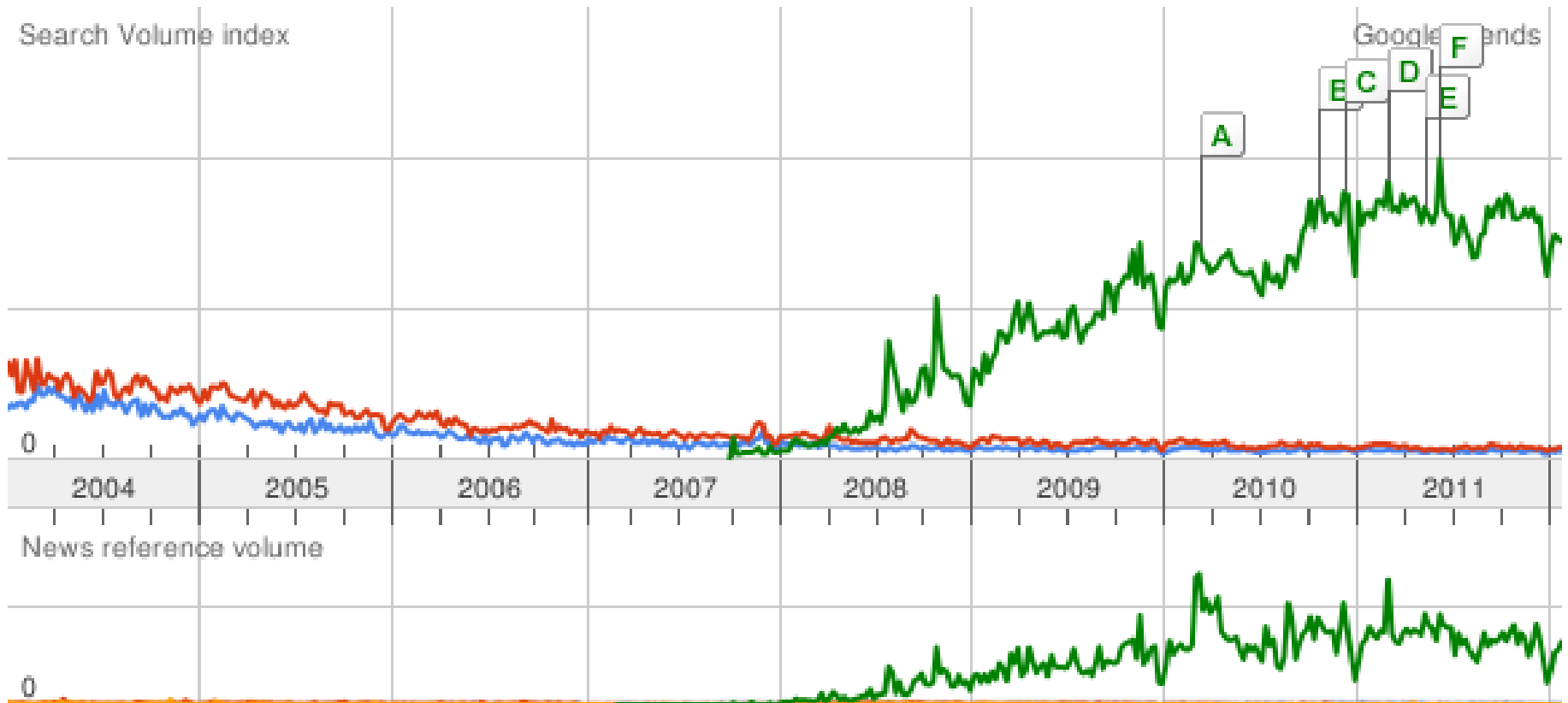
This is achieved by giving the process a well-defined interface, and making the internals and location opaque.

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Google Trends

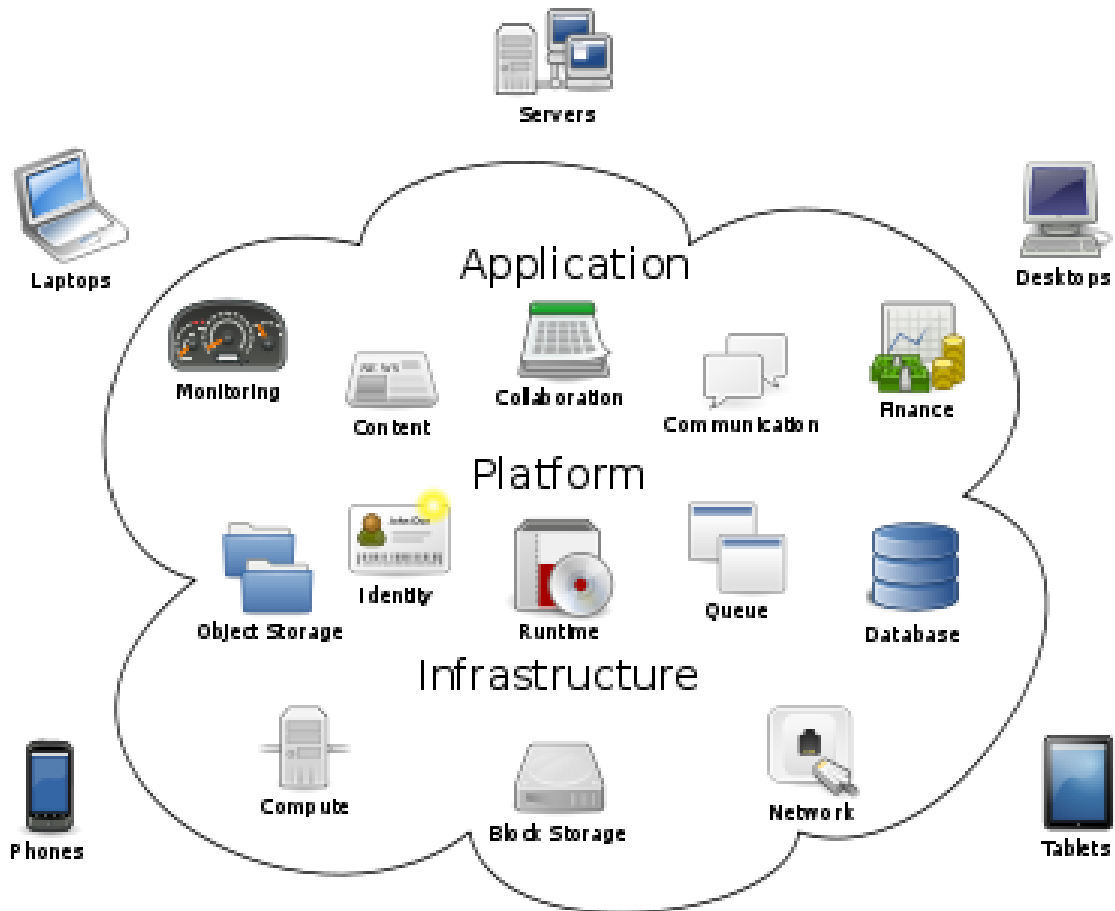
distributed computing grid computing utility computing cloud computing



Cloud Computing

Cloud computing is to in-house IT as
piped water is to having your own water works

Cloud Computing



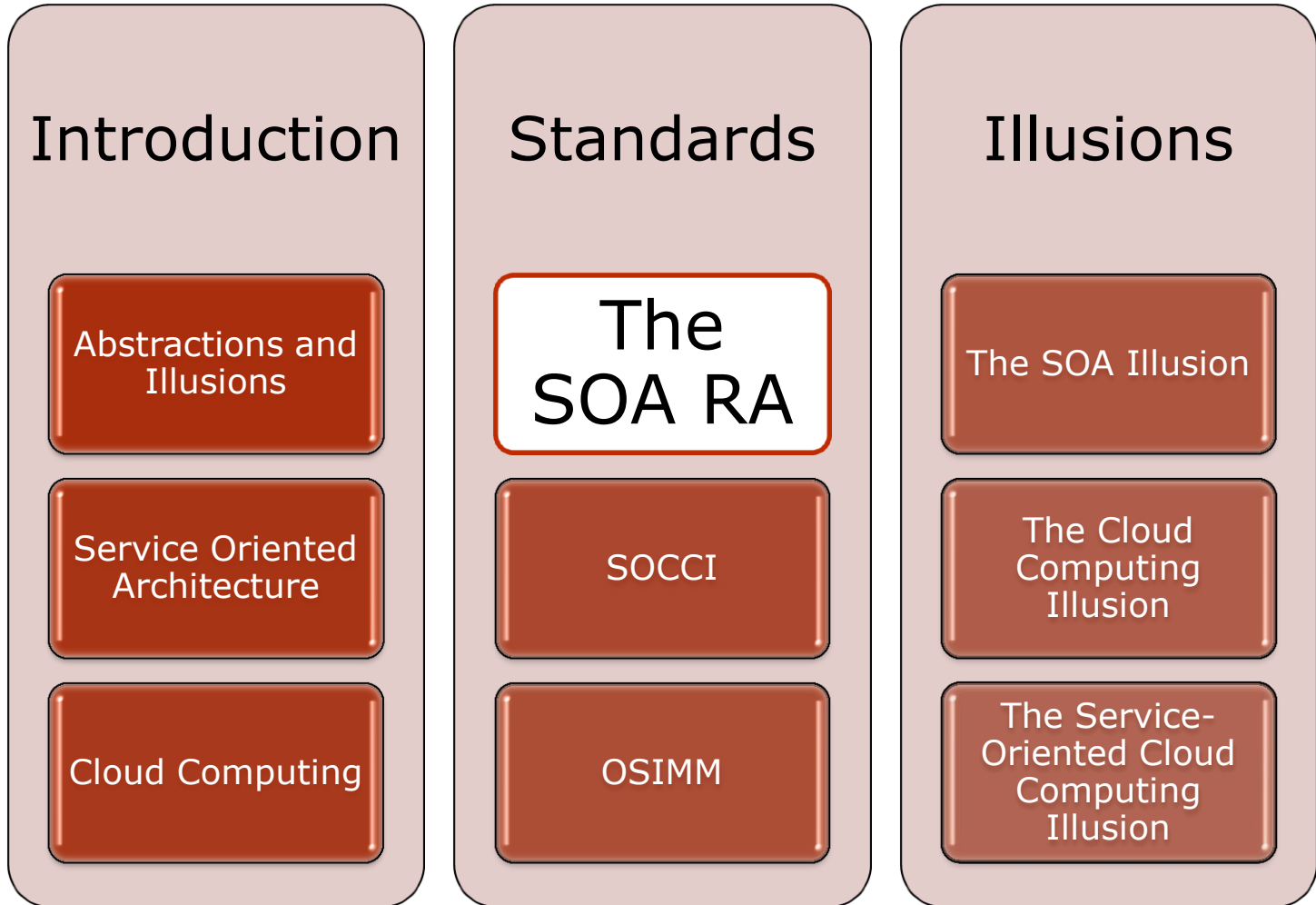
Cloud Computing

http://en.wikipedia.org/wiki/Cloud_computing

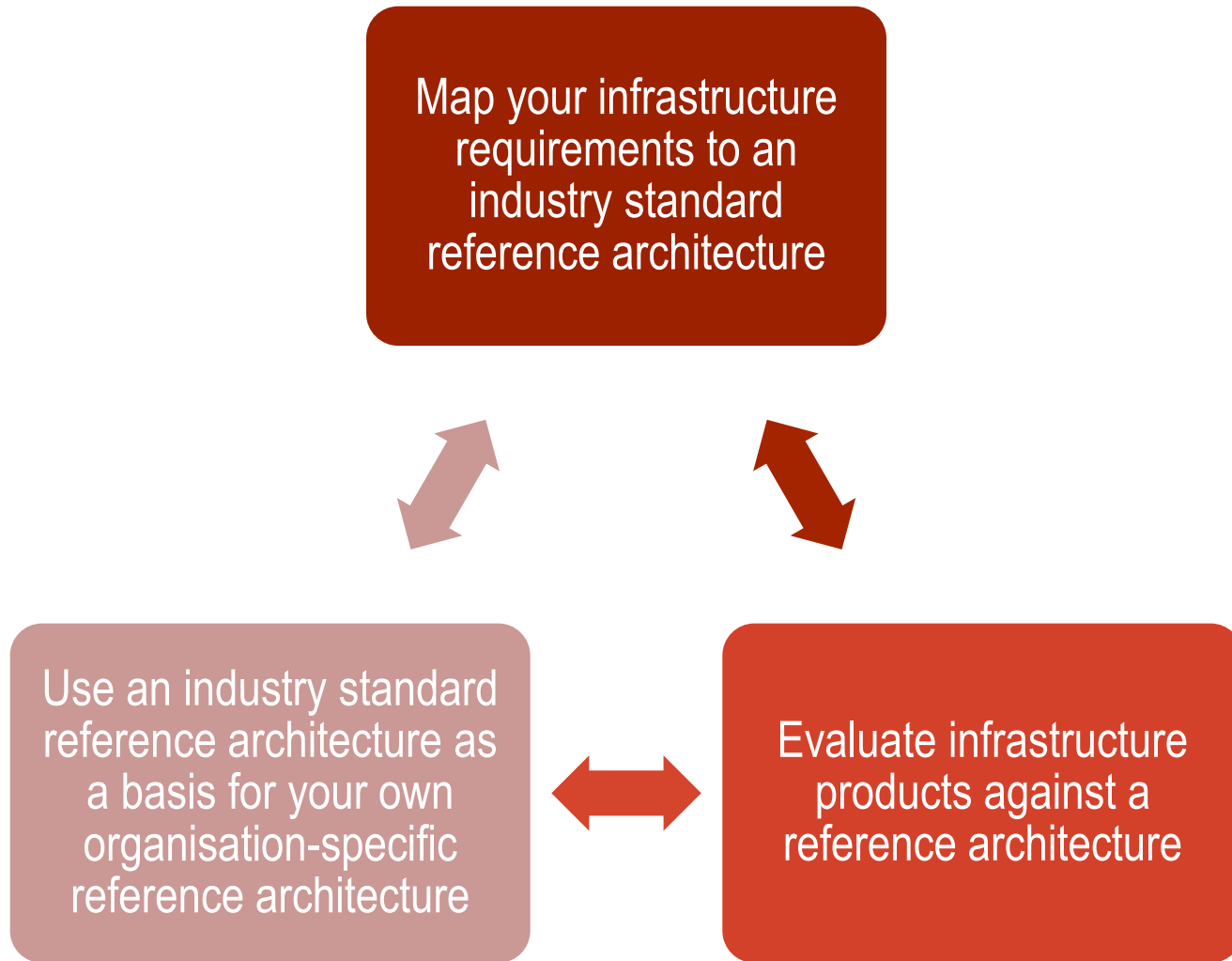
Cloud computing is the delivery of computing as a service rather than a product.

Cloud users don't need to know the location and other details of the computing infrastructure.

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SOA Reference Architecture



The SOA Reference Architecture Includes

Layers



Architecture Building Blocks per layer



Capabilities per layer



Relationships between building blocks



Intersection points with other layers

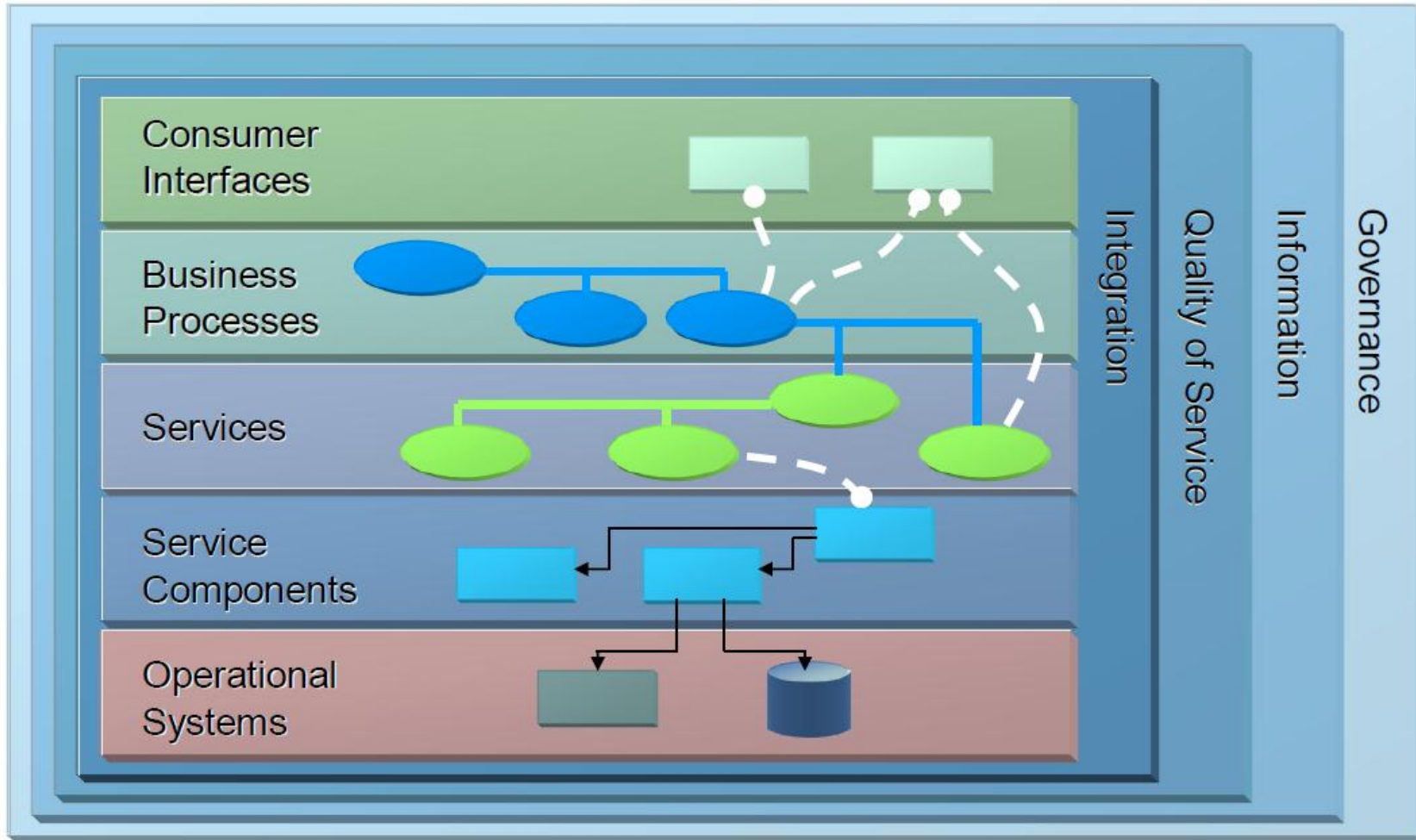


Usage implications and guidance



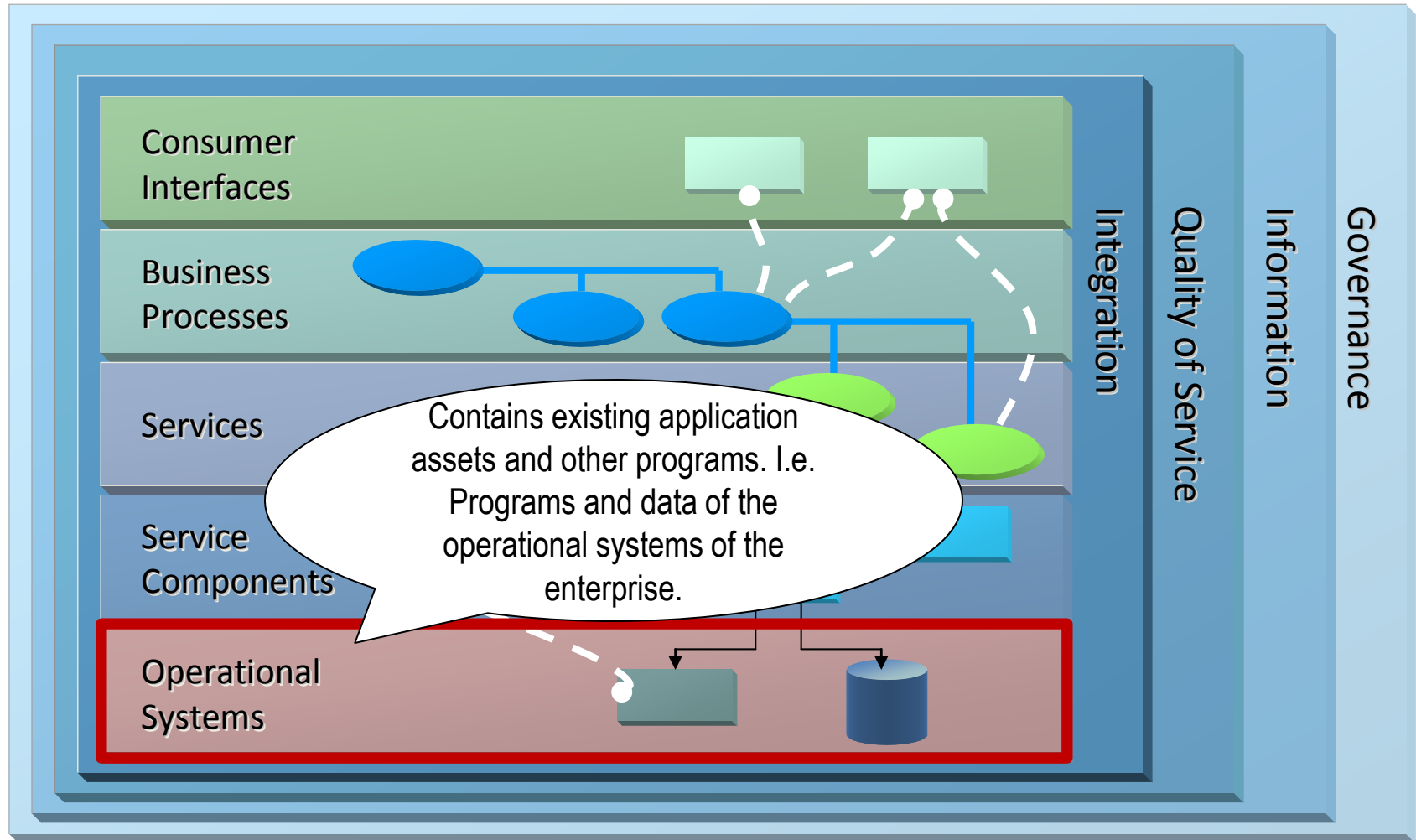
The Open Group SOA Reference Architecture

Consumer

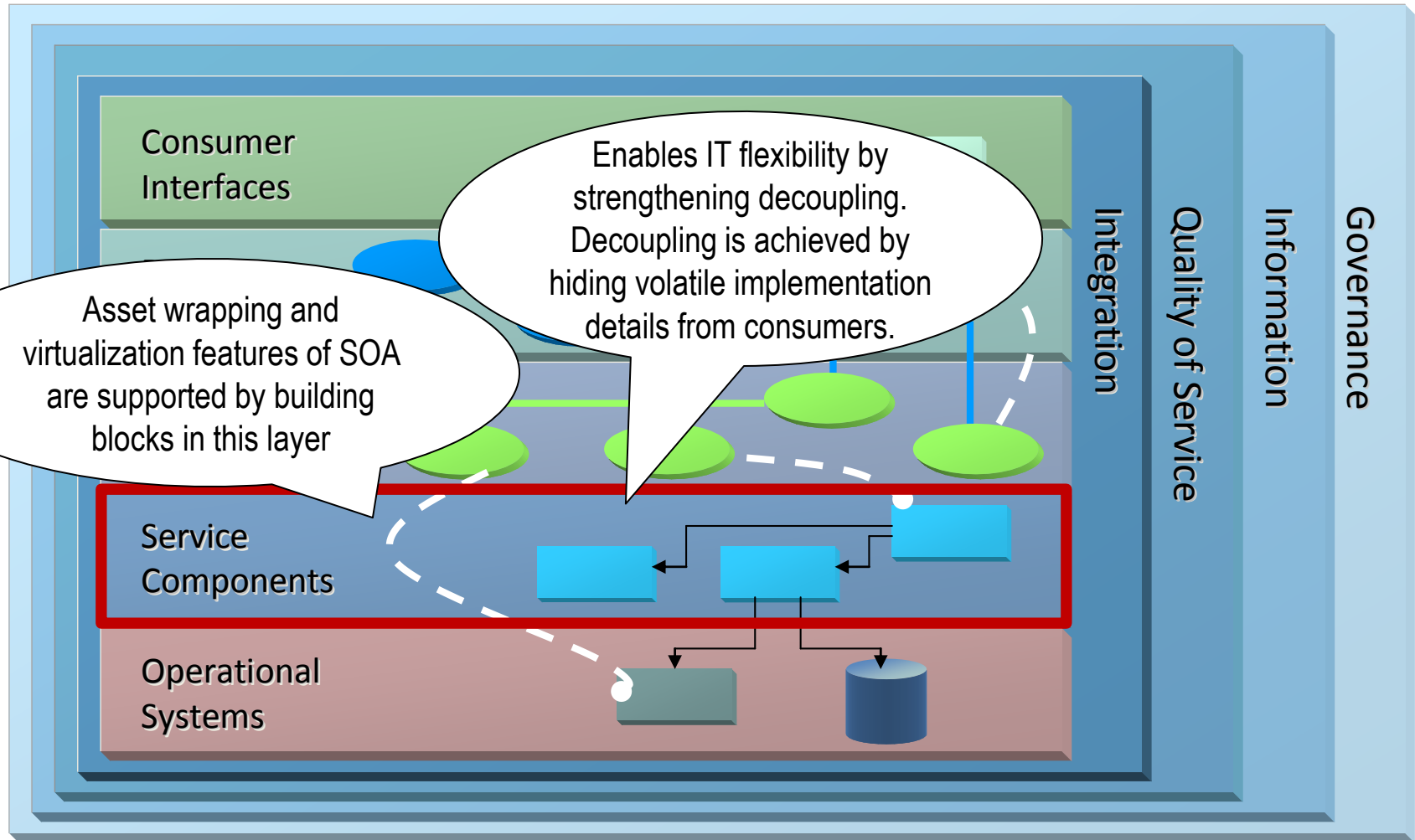


Provider

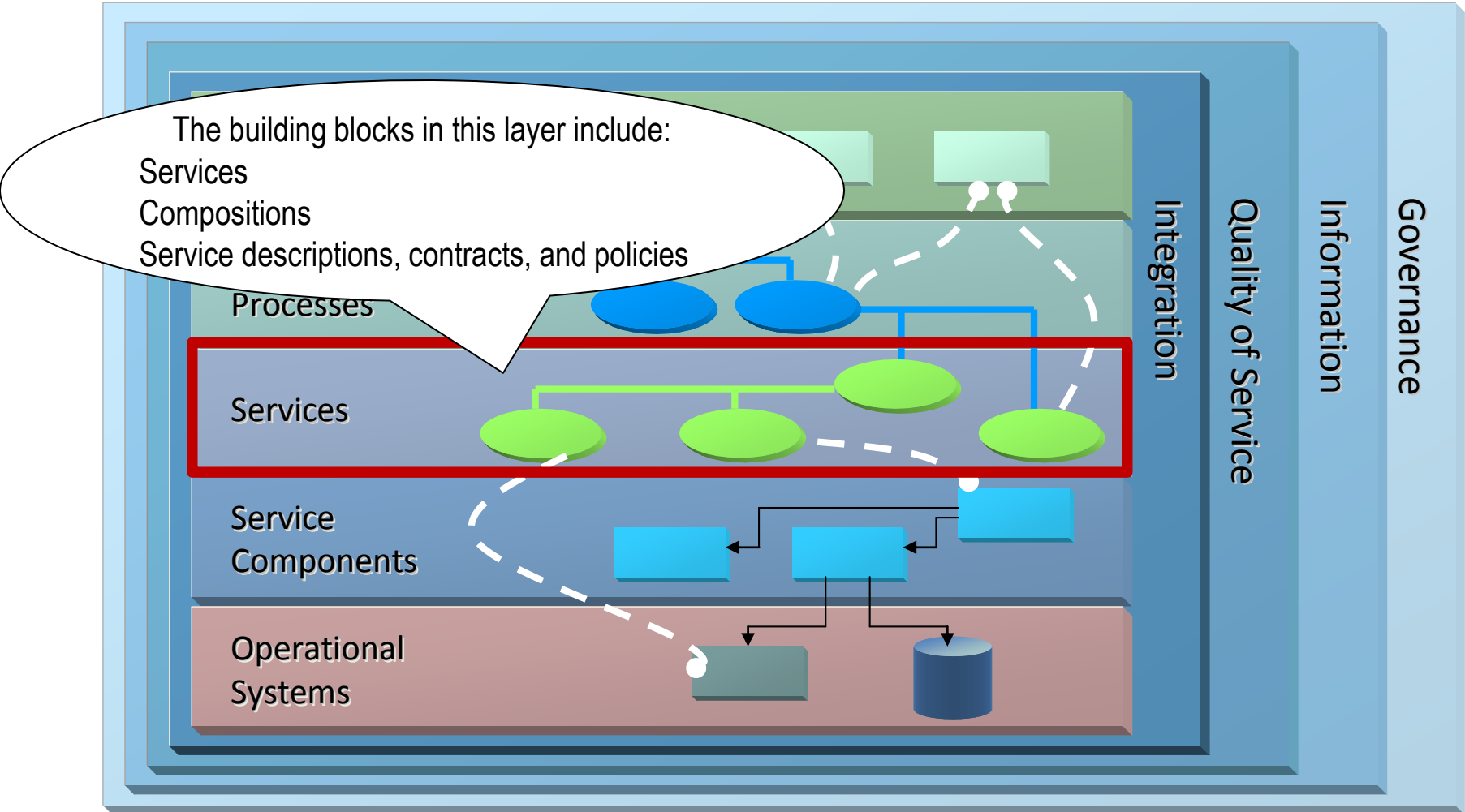
SOA RA – Operational Systems Layer



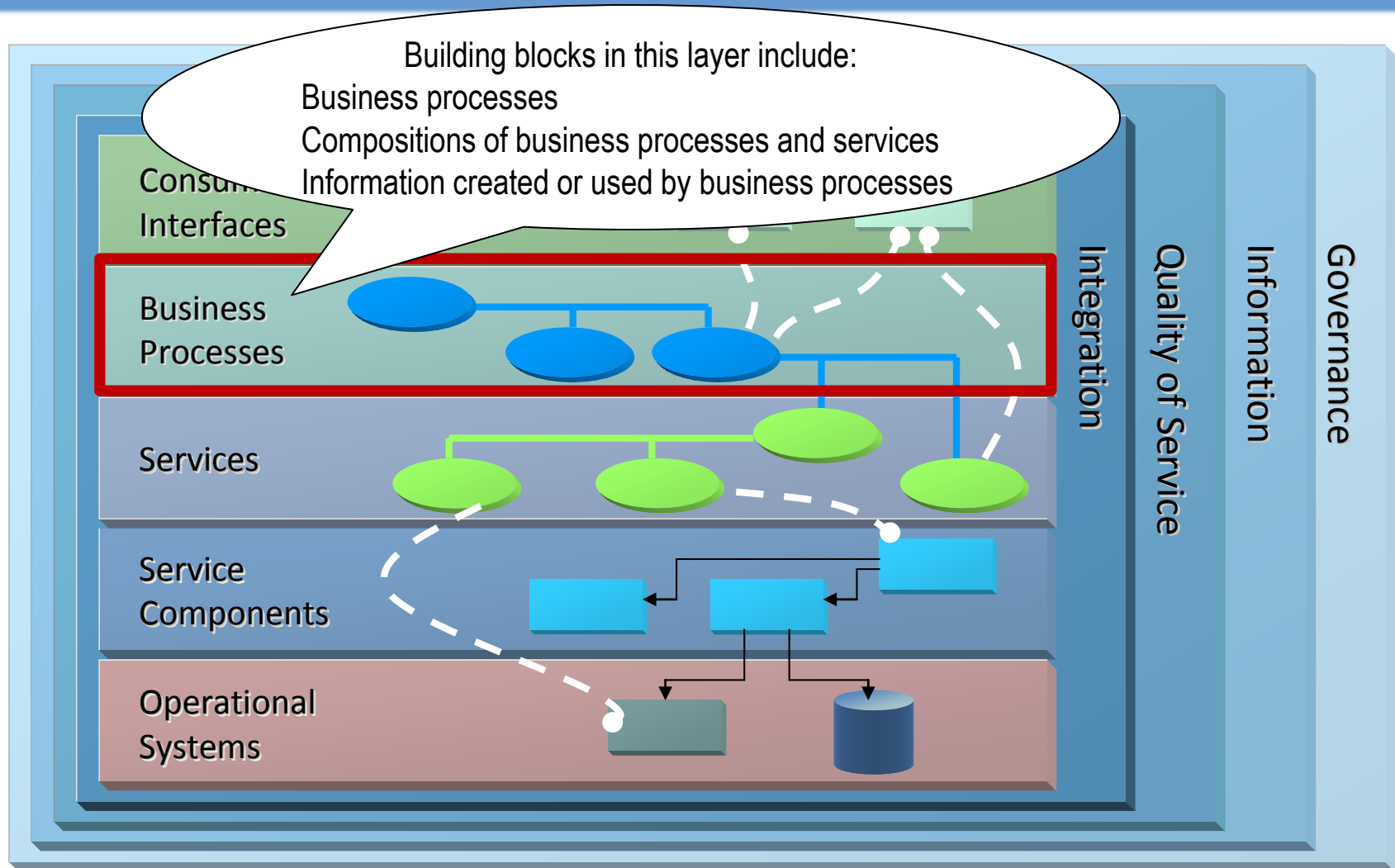
SOA RA – Service Components Layer



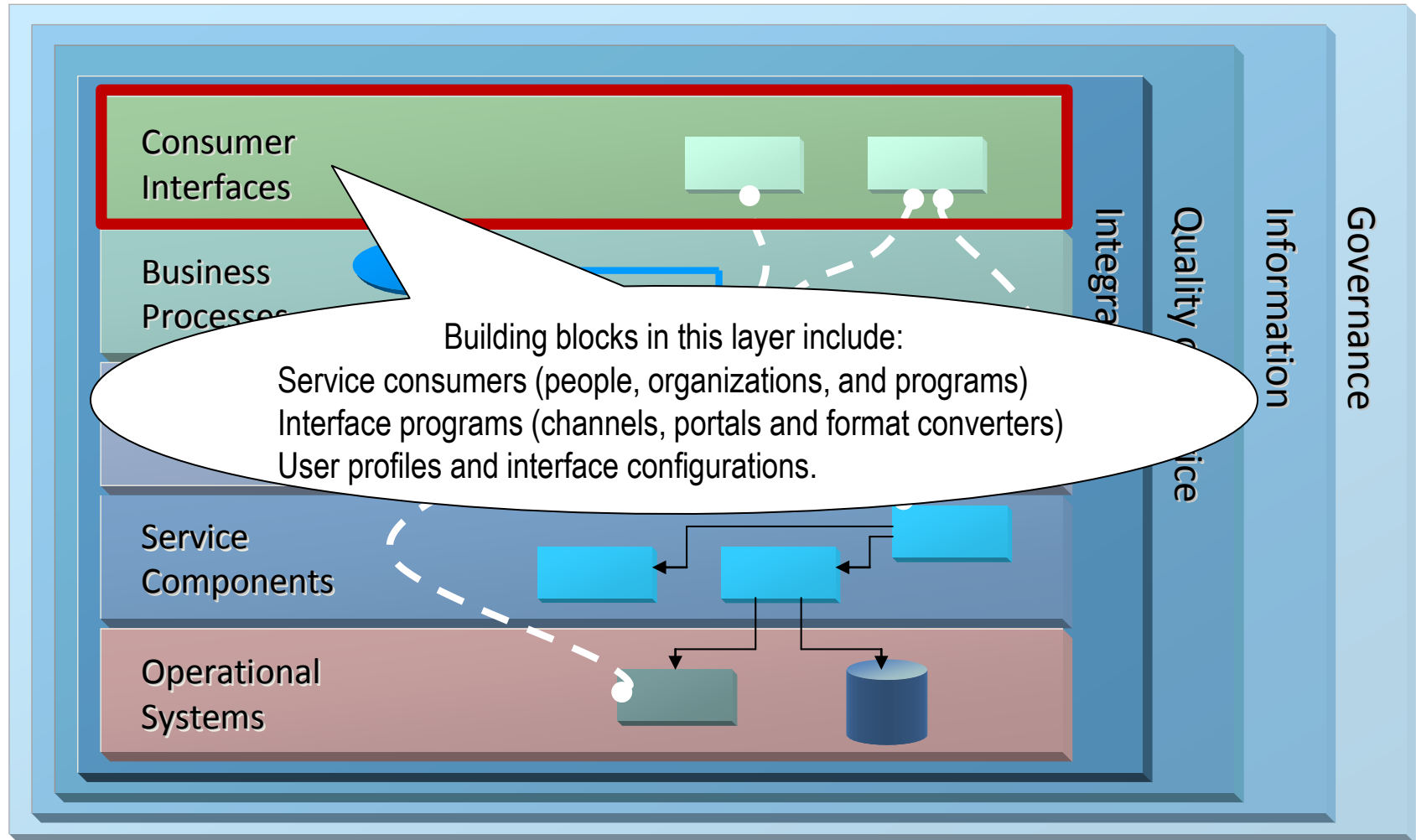
SOA RA – Services Layer



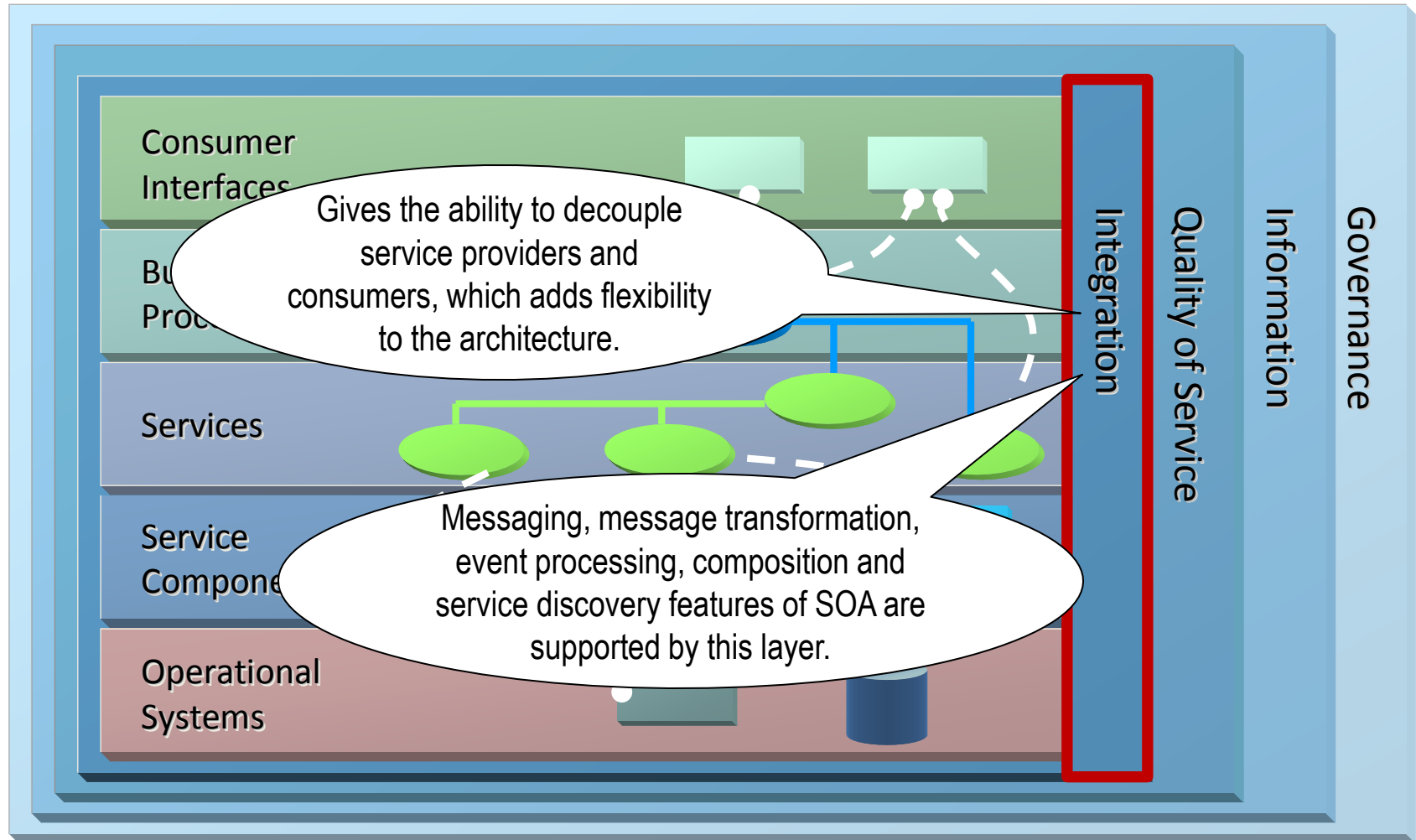
SOA RA – Business Processes Layer



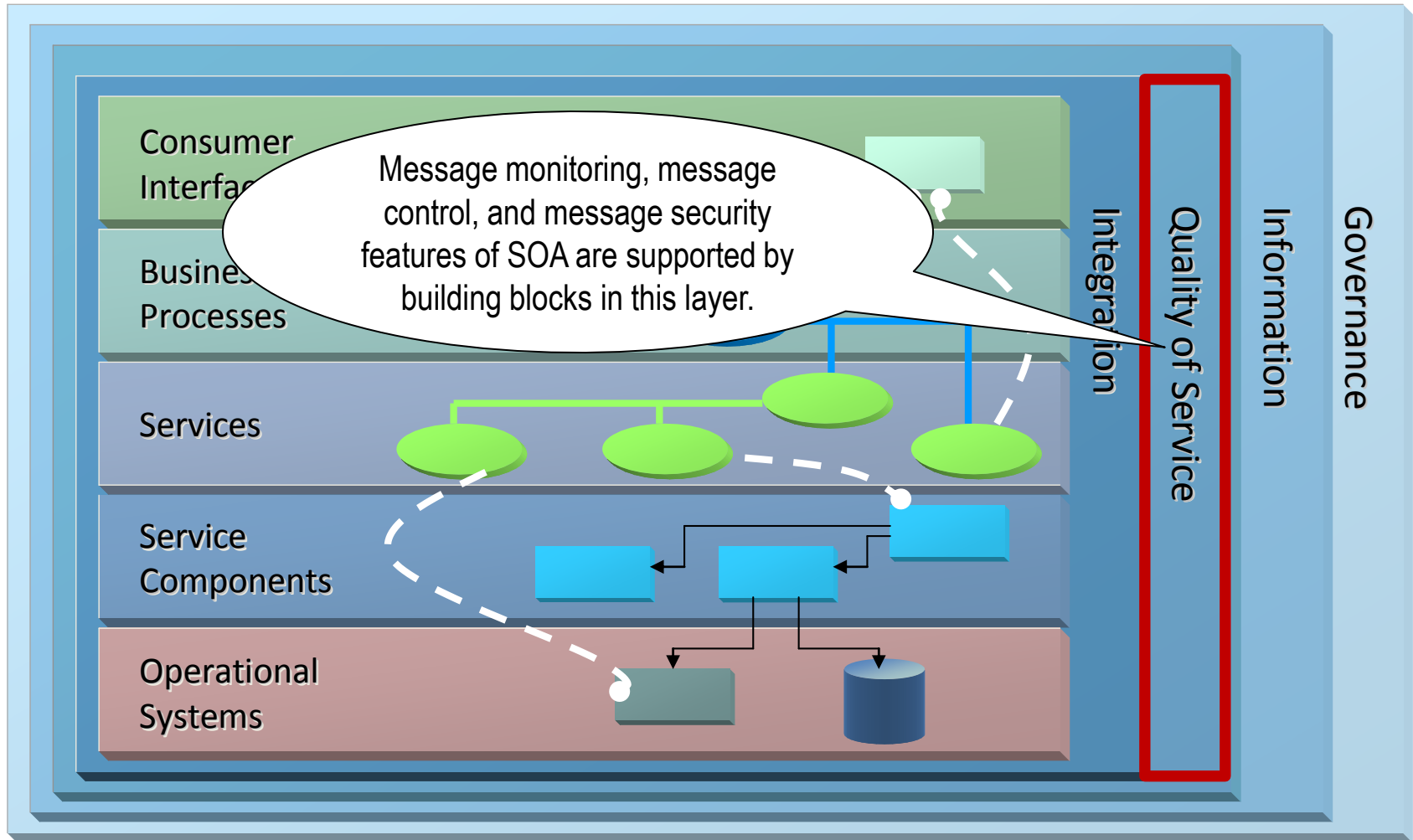
SOA RA – Consumer Interfaces Layer



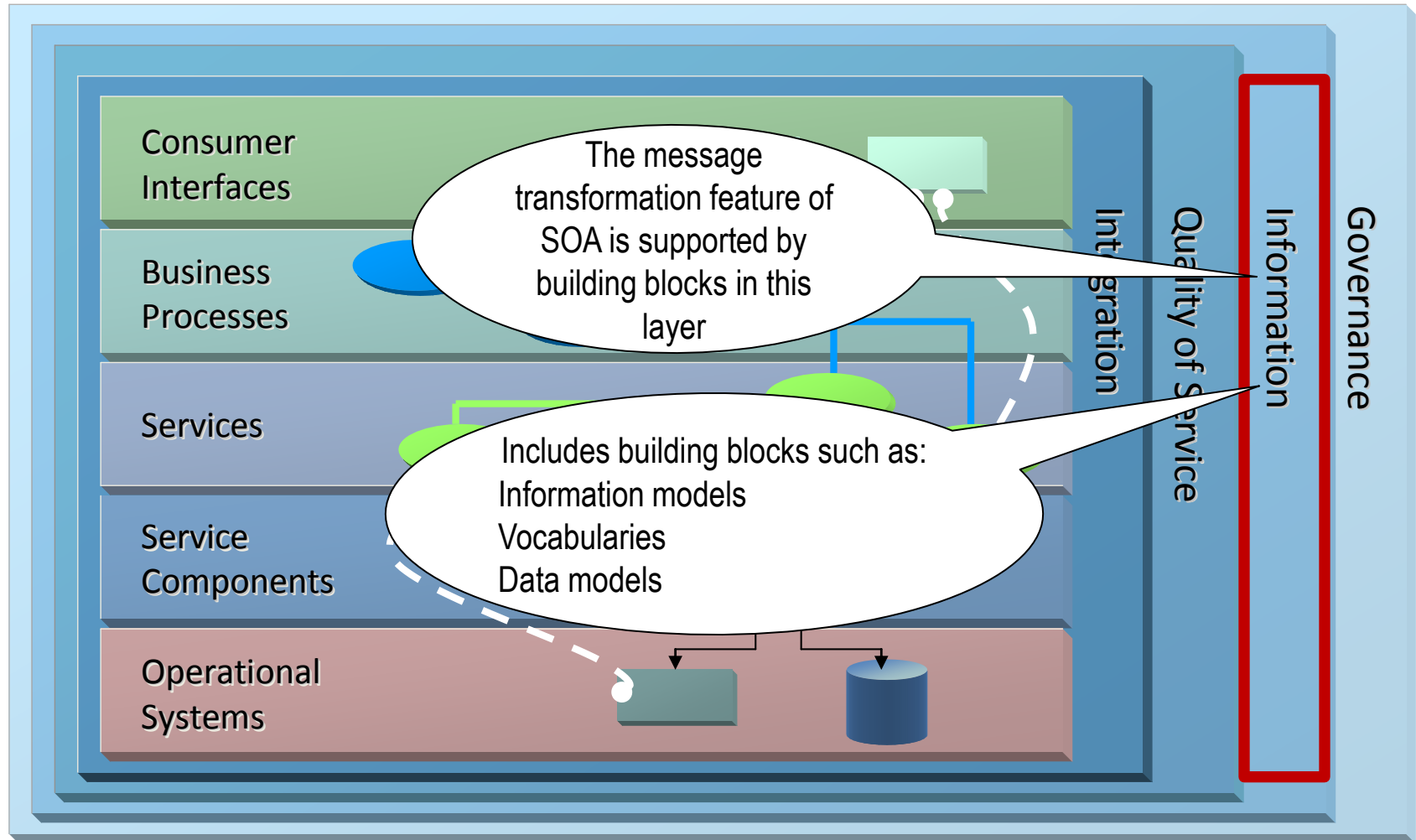
SOA RA – Integration Layer



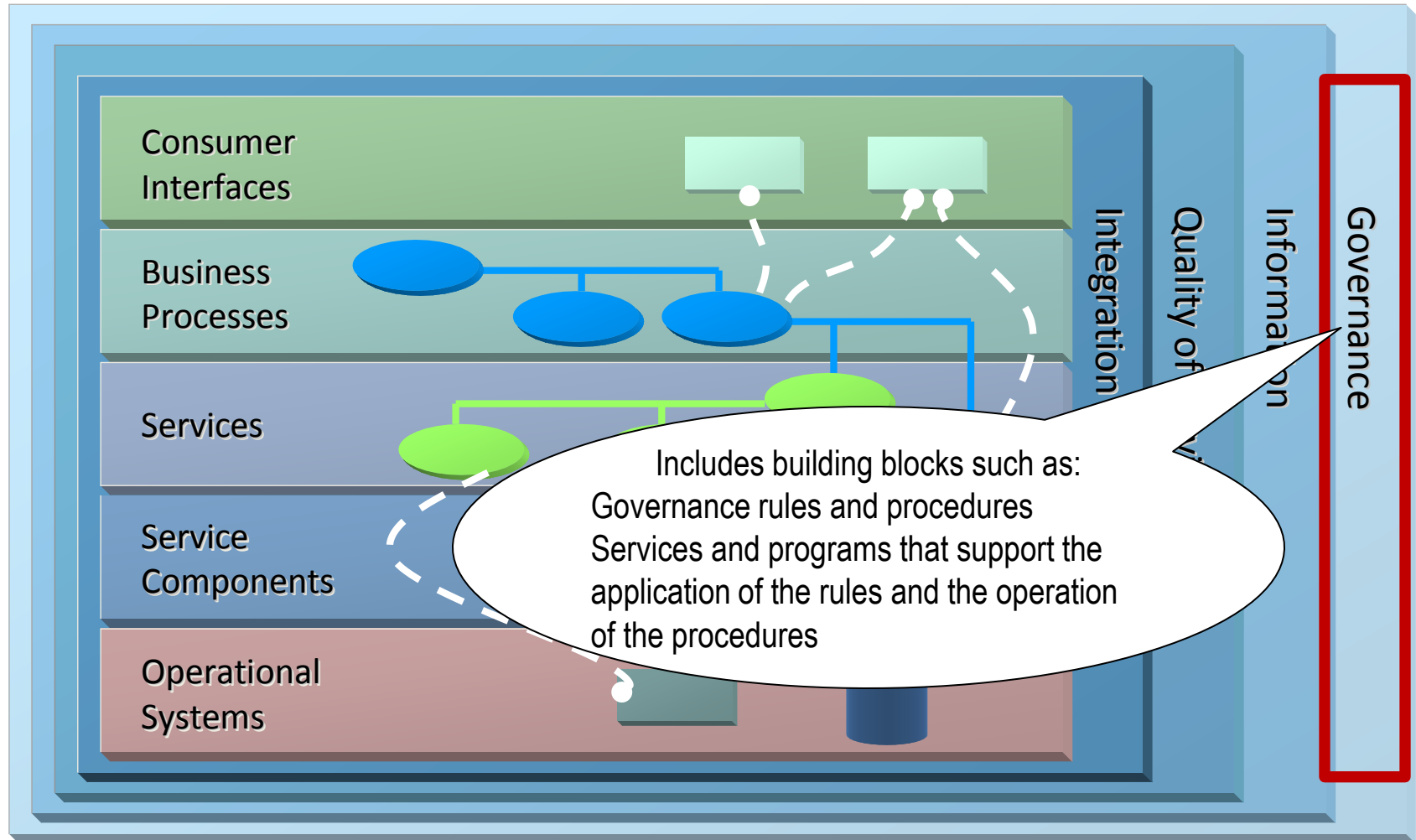
SOA RA – Quality of Service Layer



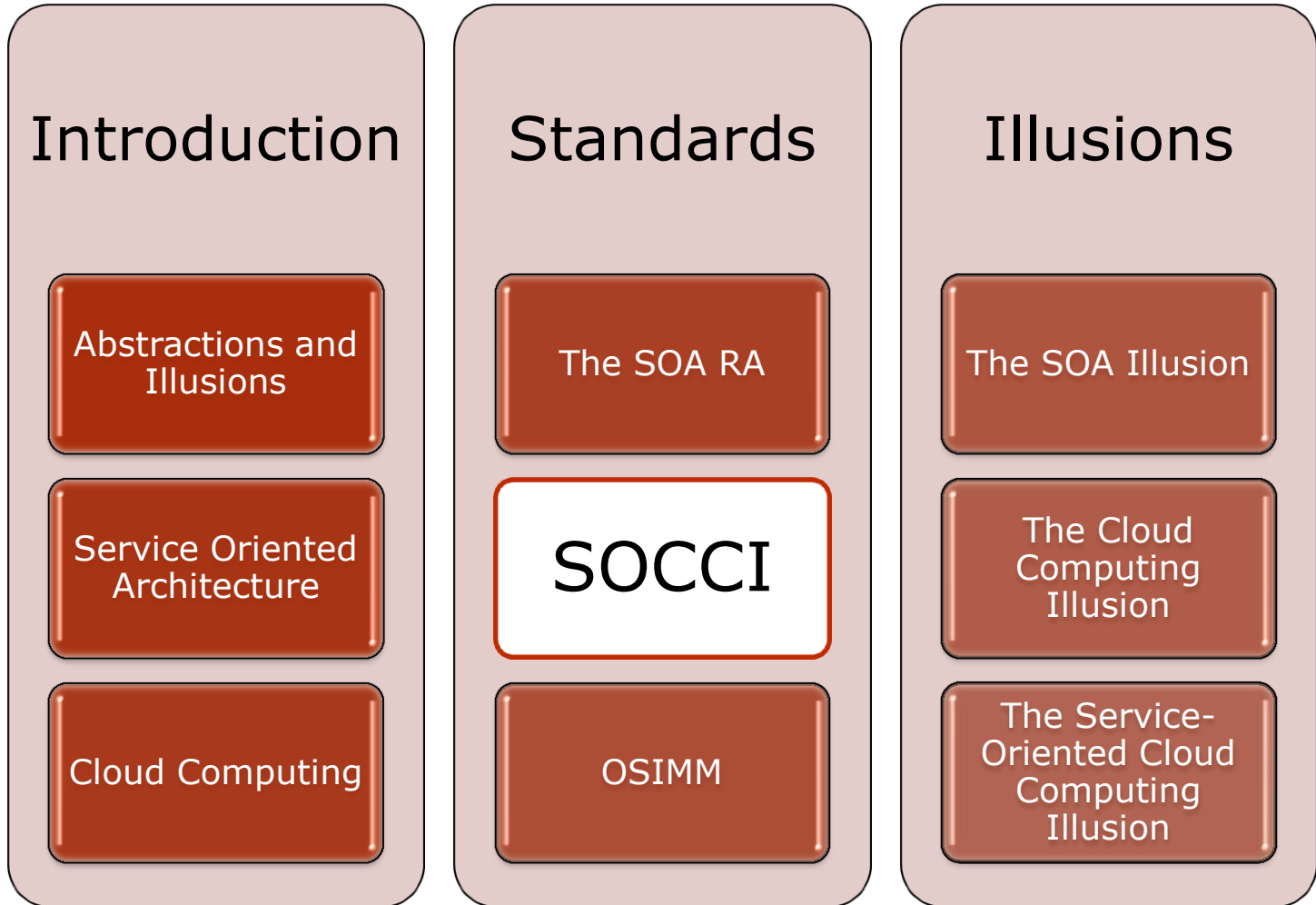
SOA RA – Information Layer



SOA RA – Governance Layer



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Service-Oriented Infrastructure

Service-orientation principles originated in the business and application architecture

IT has evolved to extending these principles to the infrastructure

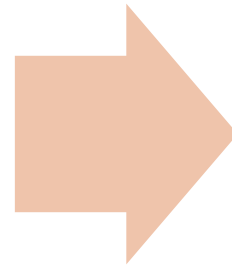
Infrastructure as a Service - IaaS

Infrastructure has been traditionally provisioned in a physical manner.

With the evolution of virtualization technologies and application of service-orientation to infrastructure, it can now be offered as a service.


Service-Oriented Cloud Computing Infrastructure

An enabling framework of service-oriented components is essential for infrastructure to be provided as a service.




Service-Oriented Cloud Computing Infrastructure (SOCCI) is the realization of this framework for the cloud.

Characteristics of SOI and Cloud



Service Oriented
Infrastructure

- Business-driven infrastructure on-demand
- Operational transparency
- Consumer provider model
- Service measurement



Cloud Computing

- On-demand self-service
- Broad network access
- Resource pooling
- Rapid elasticity
- Measured service

Business-driven infrastructure on-demand

Using service-orientation for the infrastructure provides a way to define dependencies of higher-level business services on the lower-level infrastructure services.

These extend down to the actual physical resources, such as network appliances, storage, and servers.

Operational transparency

SOI requires clear visibility into the operations of the infrastructure services.

This enables problem diagnosis, root cause analysis, and the impact of infrastructure availability on business services.

Service measurement

Service-orientation defines service-level objectives as well as measurement of delivery of those objectives.

Consumer provider model

The risk of providing, maintaining, and managing the service is significantly shifted away from the Cloud Service consumer.

The provider needs to ensure that the requisite infrastructure is in place to meet demand.

On-demand self-service

A consumer can provision computing capabilities as needed, without requiring human interaction with each service's provider.

Broad network access

Capabilities are available over the network and accessed through standard mechanisms.

These promote use by different types of client platforms (e.g. mobile phones and laptops).

Cloud Computing Characteristics

Resource pooling

The provider's computing resources are pooled to serve multiple consumers.

The provider uses a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand.

There is a sense of location-independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or data centre).

Examples of resources include storage, processing, memory, network bandwidth, and virtual machines.

Rapid elasticity

Capabilities can be rapidly provisioned and released, to quickly scale out and in.

To the consumer, the capabilities available for provisioning often appear to be unlimited and can be purchased in any quantity at any time.

Measured service

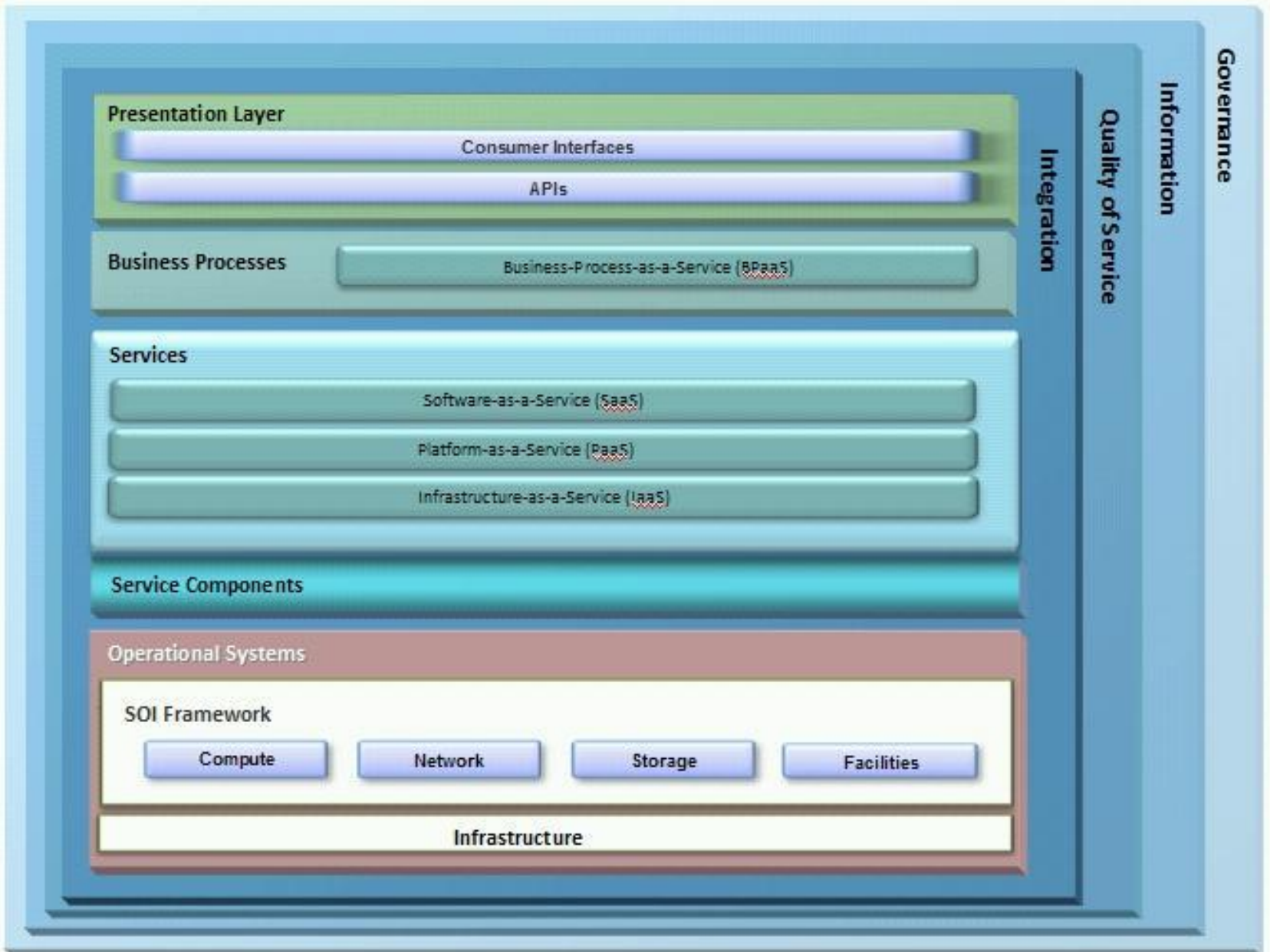
Cloud systems automatically control and optimize resource use.

They use a metering capability at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts).

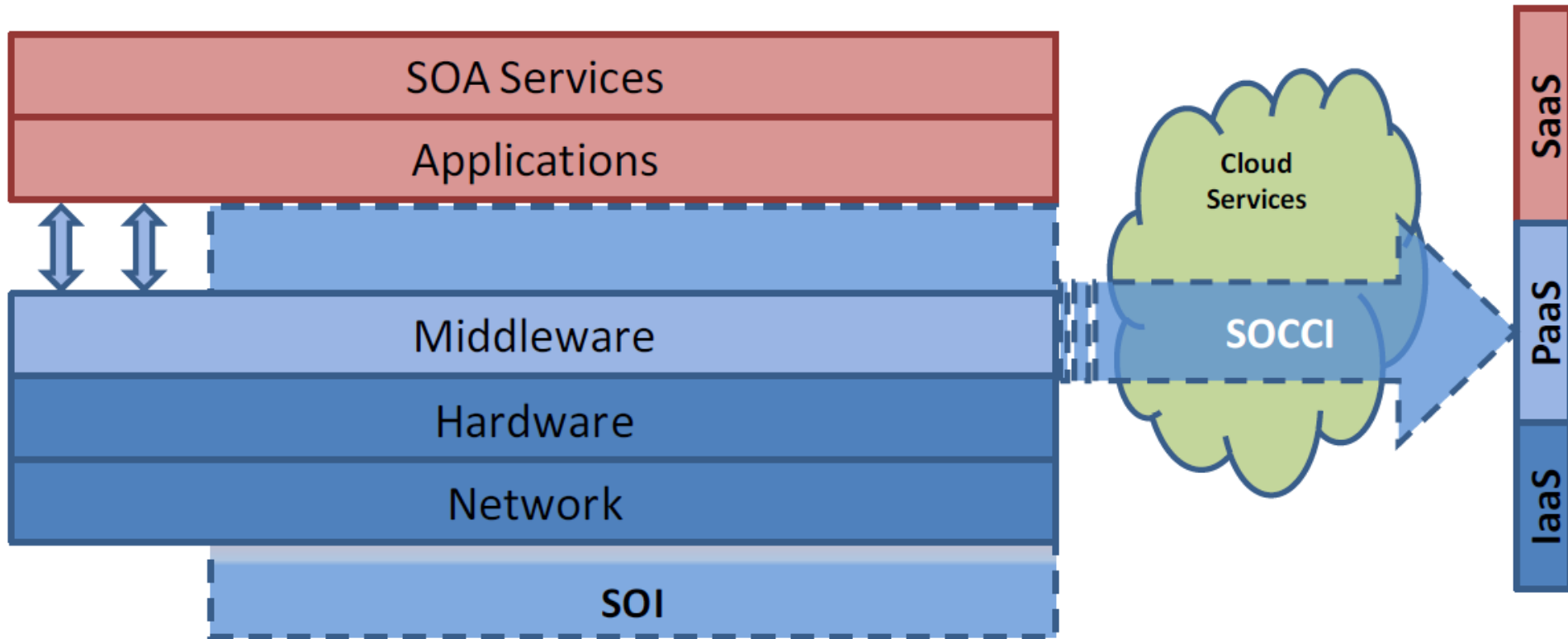
Resource usage can be managed, controlled, and reported.

This provides transparency for both the provider and consumer of the service.

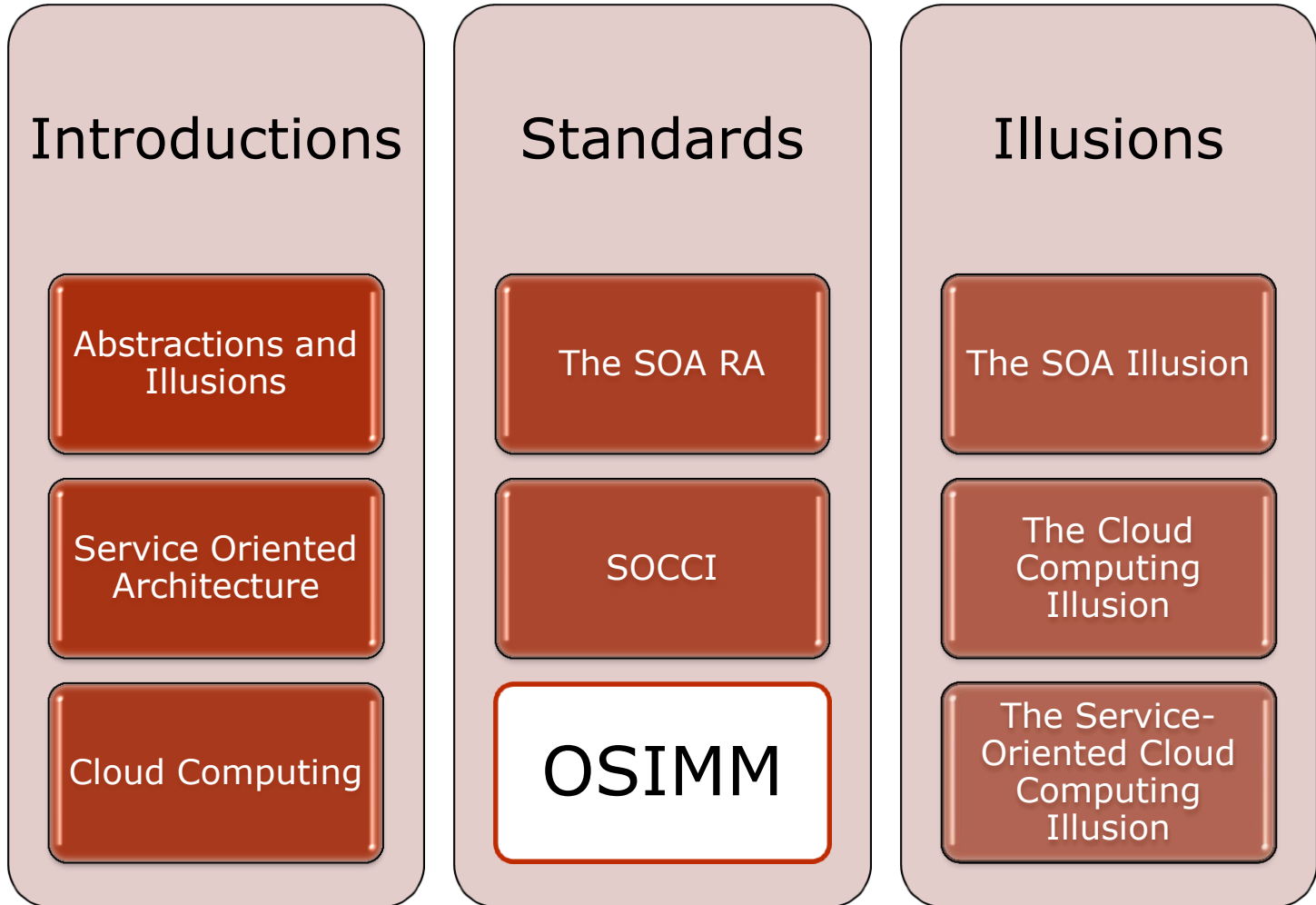
Mapping SOI to the SOA Reference Architecture



SOCCI is SOI Adoption for Cloud



Content



SOA Maturity Assessments

There are many SOA maturity assessments available from software vendors and consulting companies



The Open Group's Service Integration Maturity Model (OSIMM) is a formal open standard

The Open Group Service Integration Maturity Model (OSIMM) specifies

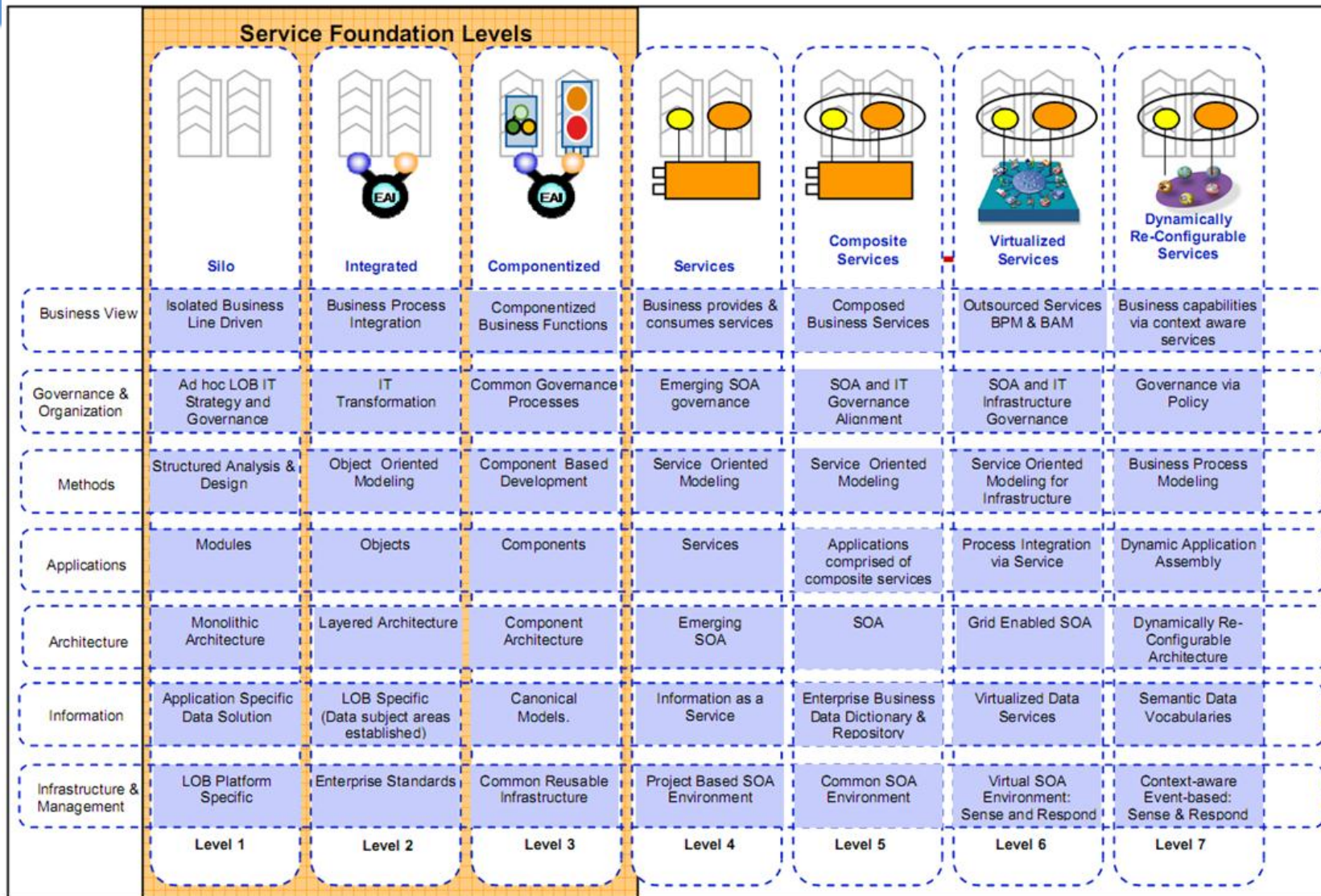


A model against which the degree of service integration maturity of an organization can be assessed.

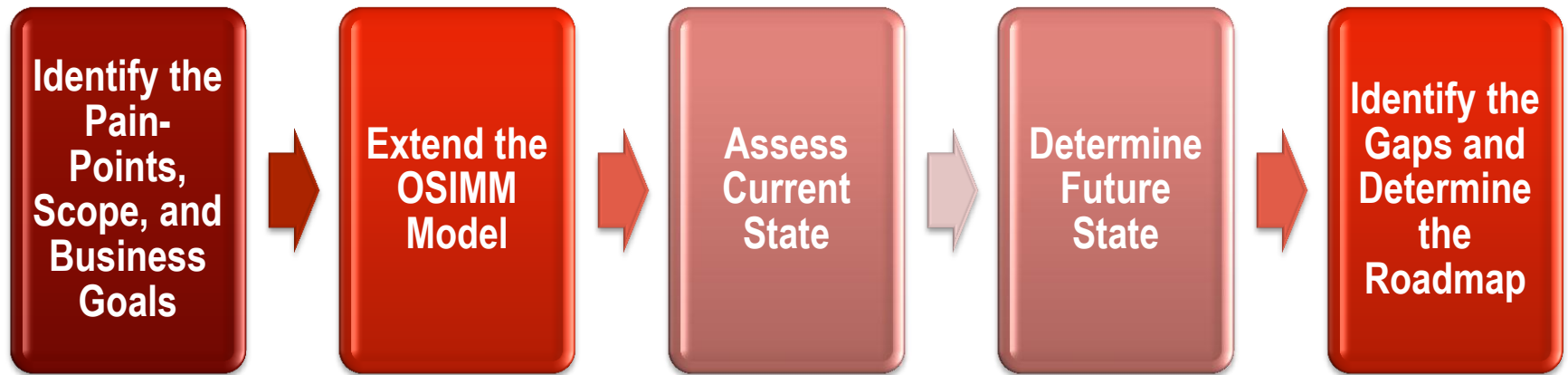


A process for assessing the current and desired degree of service integration maturity of an organization, using the model

The Maturity Matrix



OSIMM Assessment Steps



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SOCCI

OSIMM

Illusions

The SOA Illusion

The Cloud Computing Illusion

The Service-Oriented Cloud Computing Illusion

The Service Abstraction



SOA is about creating a simple but powerful illusion – that everything is a service

It abstracts the complexity of the underlying function into a service representation

The complexity doesn't go away – but it is hidden from the service consumer

SOA and Cloud Computing

SOA

A style of architecture that creates the illusion that everything is a service.

Cloud Computing

A model of computing that creates the illusion of infinite computing resources available on demand.

SOA and Cloud Computing Combined

SOA + Cloud create the illusion that everything is a service, with infinite computing resources to execute the service.

I.e. – an infinitely scalable service.

SOA and Cloud

Agility

+

Elasticity

References

www.opengroup.org/soa/source-book

www3.opengroup.org/standards/soa



The SOA Source Book

Introduction

Service Oriented Architecture

OSIMM Version 2 Technical Standard

SOA Reference Architecture Technical Standard

SOCCI Framework Technical Standard

Using TOGAF to Define and Govern SOAs

SOA Governance Technical Standard

SOA Ontology Technical Standard

Navigating the SOA Open Standards Landscape Around Architecture White Paper

[SOA Work Group](#)

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Introduction

The Open Group SOA Source Book is a collection of source material for use by enterprise architects working with Service-Oriented Architecture.

It consists of material that has been considered and in part developed by The Open Group [SOA Work Group](#). The SOA Work Group is engaged in a work program to produce definitions, analyses, recommendations, reference models, and standards to assist business and information technology professionals within and outside of The Open Group to understand and adopt SOA.

The Source Book includes the final output of that work program, which is also published separately as a collection of Open Group Standards and Guides. It also includes interim material, reflecting the current state of work that has not yet resulted in formal Standards and Guides. The content of this material will not necessarily be reflected in the final output.

This is Edition 4 of the SOA Source Book. Edition 1, published by Van Haren in April 2009, and also [available on the web](#), contained interim material only. Since it appeared, The Open Group has published three SOA standards and one SOA guide – The Open Group Service Integration Maturity Model (OSIMM), The Open Group SOA Governance Framework, The Open Group SOA Ontology, and the Guide to Using TOGAF to Define and Govern SOAs – and has also published a White Paper on Navigating the SOA Open Standards Landscape around Architecture, which was written by the Work Group together with members of OASIS and the OMG. The first two of the standards and the White Paper were summarized in the body of Edition 2, and included in full as appendices. Edition 2 also included updated interim material on Service-Oriented Infrastructure. Edition 3 added the SOA Ontology, which was approved as an Open Group Technical Standard in October 2010. Edition 4 adds the Guide to Using TOGAF to Define and Govern SOAs, and has a new structure, with the Standards and Guides now appearing in the body of the Source Book, rather than as appendices.

The material in the SOA Source Book reflects input from a large number of people from a wide range of Open Group member companies, including product vendors, consultancies, and users of SOA. In some cases, these people have brought concepts developed, not just by themselves, but by groups of people within their organizations. The input has been refined and further developed through discussion within the Work Group. The value in the result is due to the ideas and efforts of the Work Group members.

The material is now published in its current form to make that value available to the wider architecture community.



Subject Areas

[Service-Oriented Architecture](#)[SOA Work Group](#)[Standards](#)[Overview](#)[Enterprise Architecture](#)[Cloud Computing](#)[Enterprise Management](#)[Platform](#)[Product Lifecycle](#)[Real-time & Embedded Systems](#)[Security](#)[Semantic Interoperability](#)

Service-Oriented Architecture Standards



The Open Group develops SOA open standards to assist business and information technology professionals within and outside The Open Group to understand and adopt SOA.

The Open Group SOA standards are included in the [SOA Source Book](#) and are available from [The Open Group Bookstore](#). They include:

- [The Open Group Service Integration Maturity Model \(OSIMM\) Version 2](#)
- [Service-Oriented Architecture Ontology](#)
- [SOA Governance Framework](#)
- [SOA Reference Architecture](#)
- [Service-Oriented Cloud Computing Infrastructure \(SOCCI\) Framework](#)

For more details on our activities, see the [SOA Work Group](#), or [join the group](#).