Service Oriented Architecture

Agenda

1   **A broad agenda of SOA**

2   **Principles of SOA**

3   **Types of Service Oriented Architecture**

Objectives

- At the end of the module, you will be able to:

  - Describe the basics of SOA
  - Describe the core principles of SOA
  - Describe the different types of SOA

Broad agenda of SOA

What is SOA? – An Introduction

- Service Oriented Architecture (SOA) represents an Enterprise Application architecture, which *increases the agility and cost effectiveness of the enterprise architecture while reduces the burden of IT on an Organization*

- In SOA, Services are positioned as the primary means of achieving the solution logic
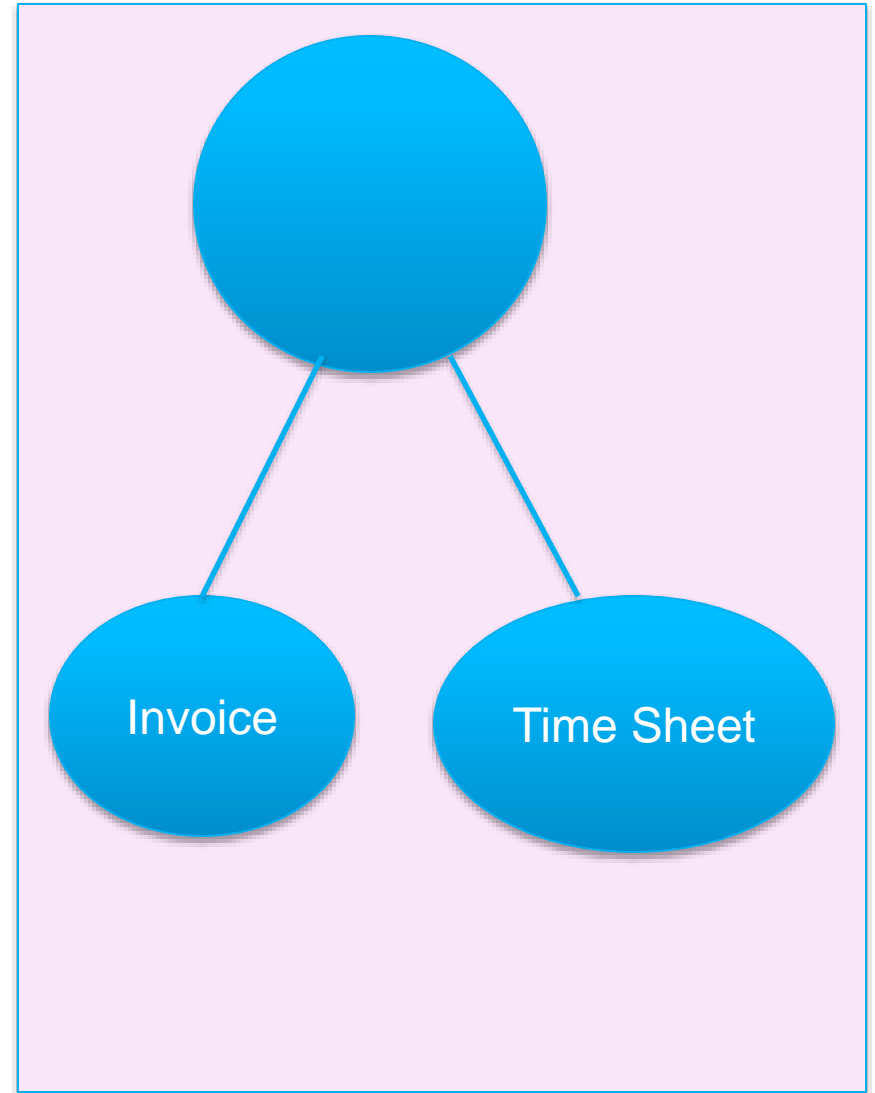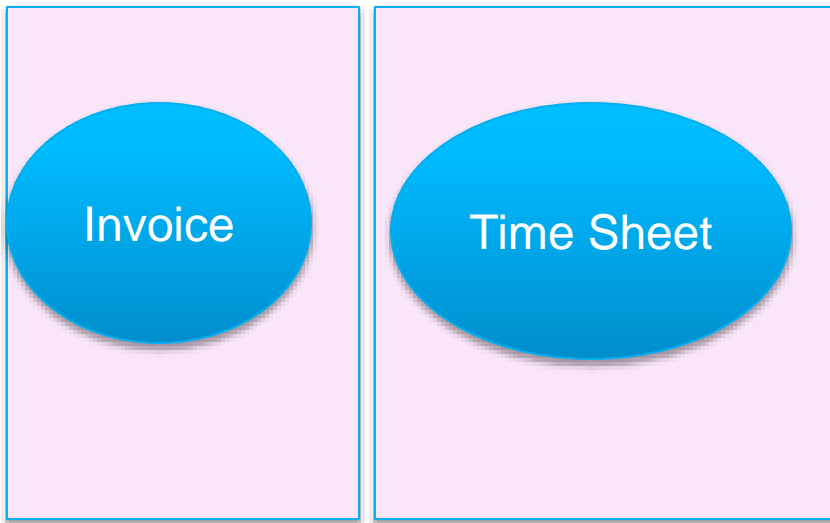
Goals & Benefits of SOA

- All goals and benefits of SOA are *strategic* in nature, which is in contradiction with silo-based development
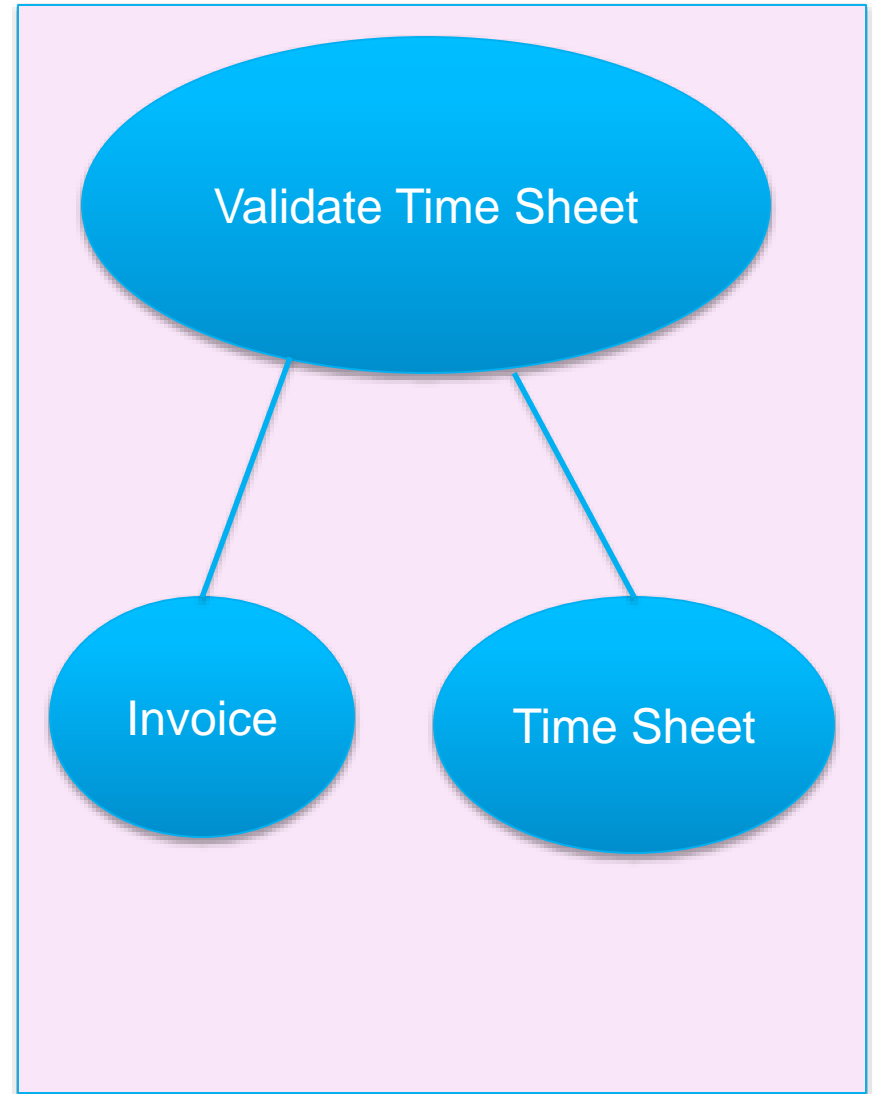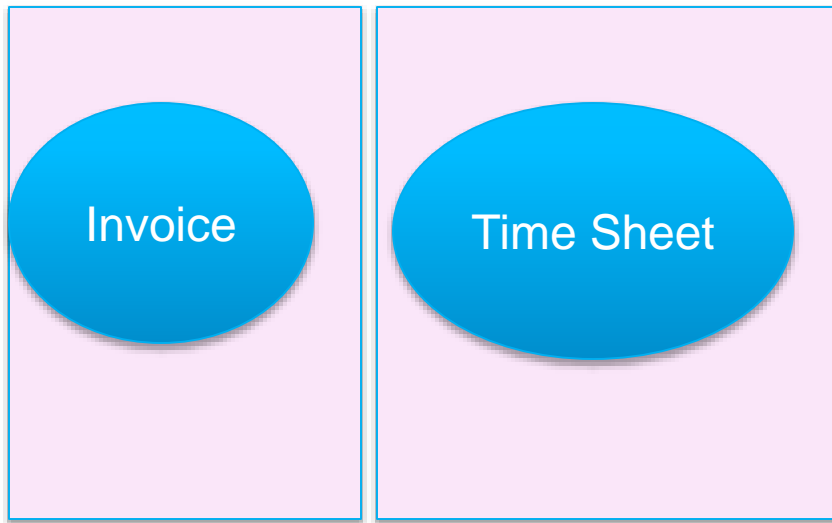
Goals & Benefits of SOA

Below are the strategic Goals & Benefits of SOA

- Intrinsic interoperability

- Increased Federation

- Increased Business & Technology alignment

- Vendor diversification

- Increased ROI

- Increased Organizational agility
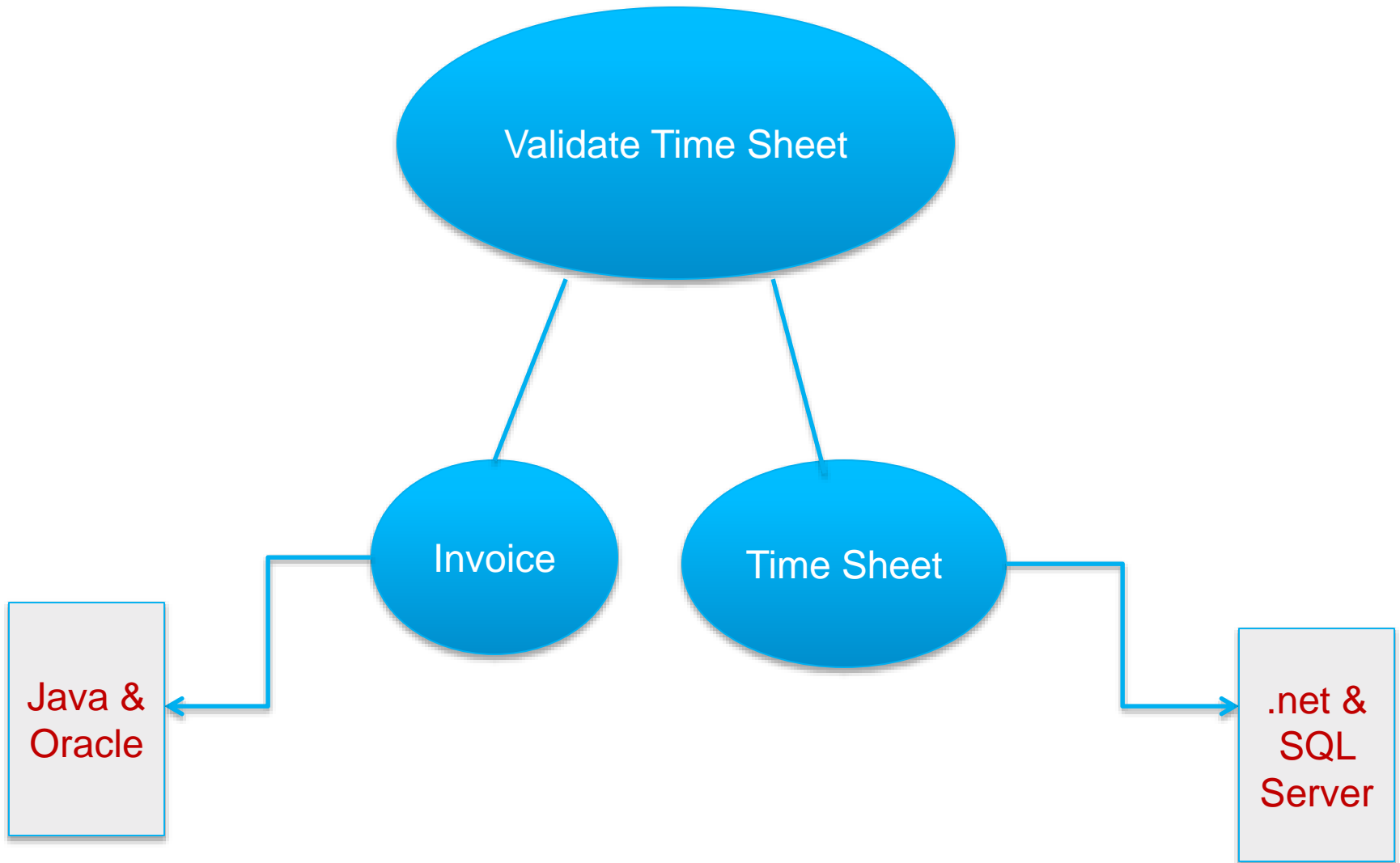
- Reduced IT burden

1. Intrinsic interoperability

2. Increased Federation

3. Increased Business &Technology alignment

➢ Increased alignment of technology with business needs

4. Increased Vendor diversification Options

5. Increased ROI
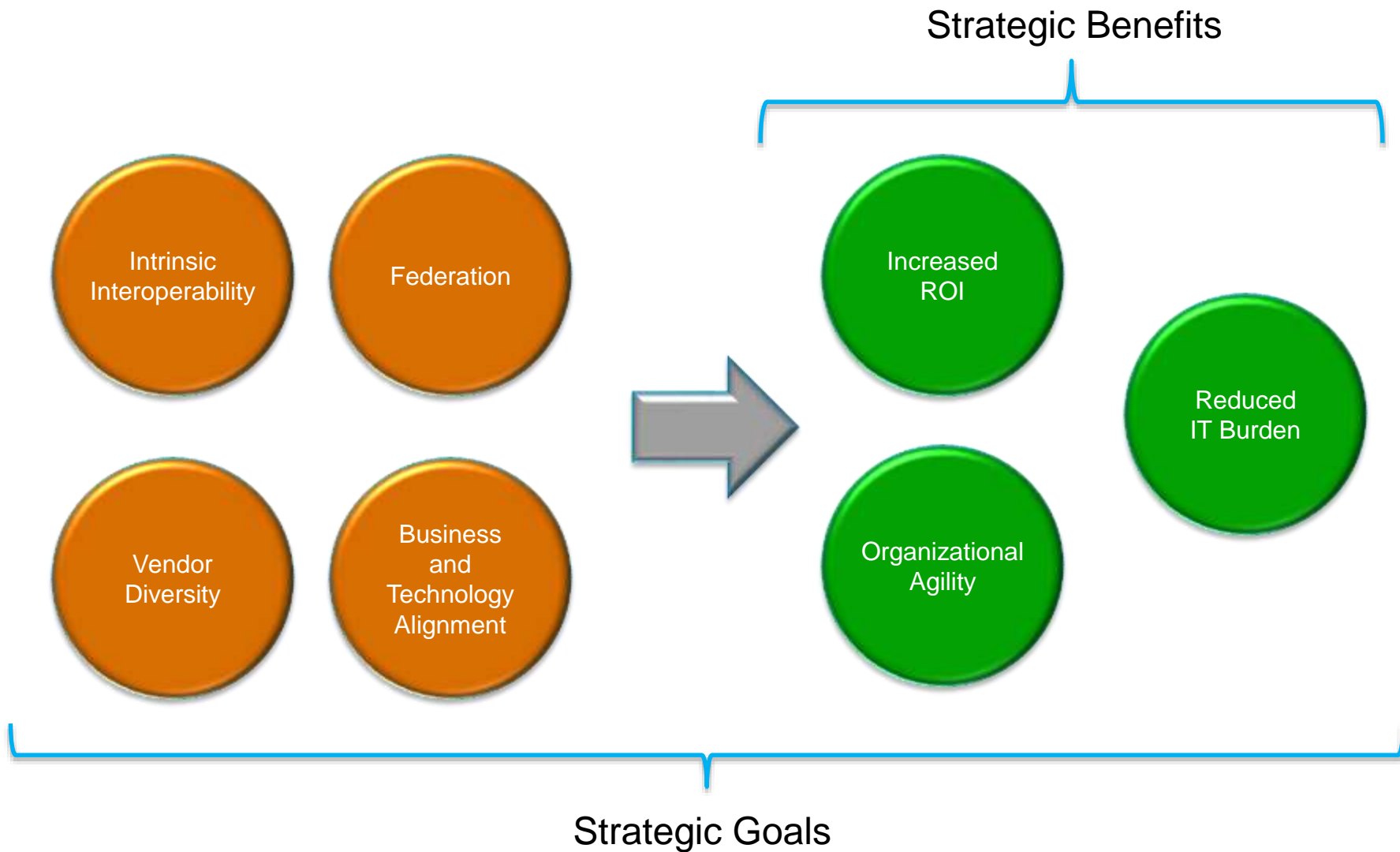
> Increased Return On Investment

6. Increased Organization agility

➤ Agility, on an organizational level, refers to efficiency with which an organization can respond to change

➤ Being able to more quickly adapt to industry changes and outmaneuver competitors has tremendous strategic significance

7. Reduced IT burden

Consistently applying service–orientation can benefit an organization through dramatic increases in efficiency and cost-effectiveness

Goals & Benefits of SOA (Contd.).

Strategic Benefits

Intrinsic Interoperability

Federation

Vendor Diversity

Business and Technology Alignment

Increased ROI

Reduced IT Burden

Organizational Agility

Strategic Goals

Characteristics of SOA

- Service Oriented Architecture, which is a distributed technology architecture has the following distinct characteristics:

  - *Driven by business*

  - *Neutral of Vendors*

  - *Enterprise centric*

  - *Composition centric*

What is Service?

- *A service is a logical representation of a repeatable activity that has a specified outcome*

- *It is self-contained and is a 'black box' to its consumers*

- *It is accessible through a Standardized Service Contract*

- *Service essentially has two parts.*
  - *Service Contract*
  - *Service Logic*

Service Contract

- A service contract defines the *set of rules for engagement*

- It also expresses meta information required to invoke the service.

- *Service Registry Profile or SLA*, used to define additional information about the service.
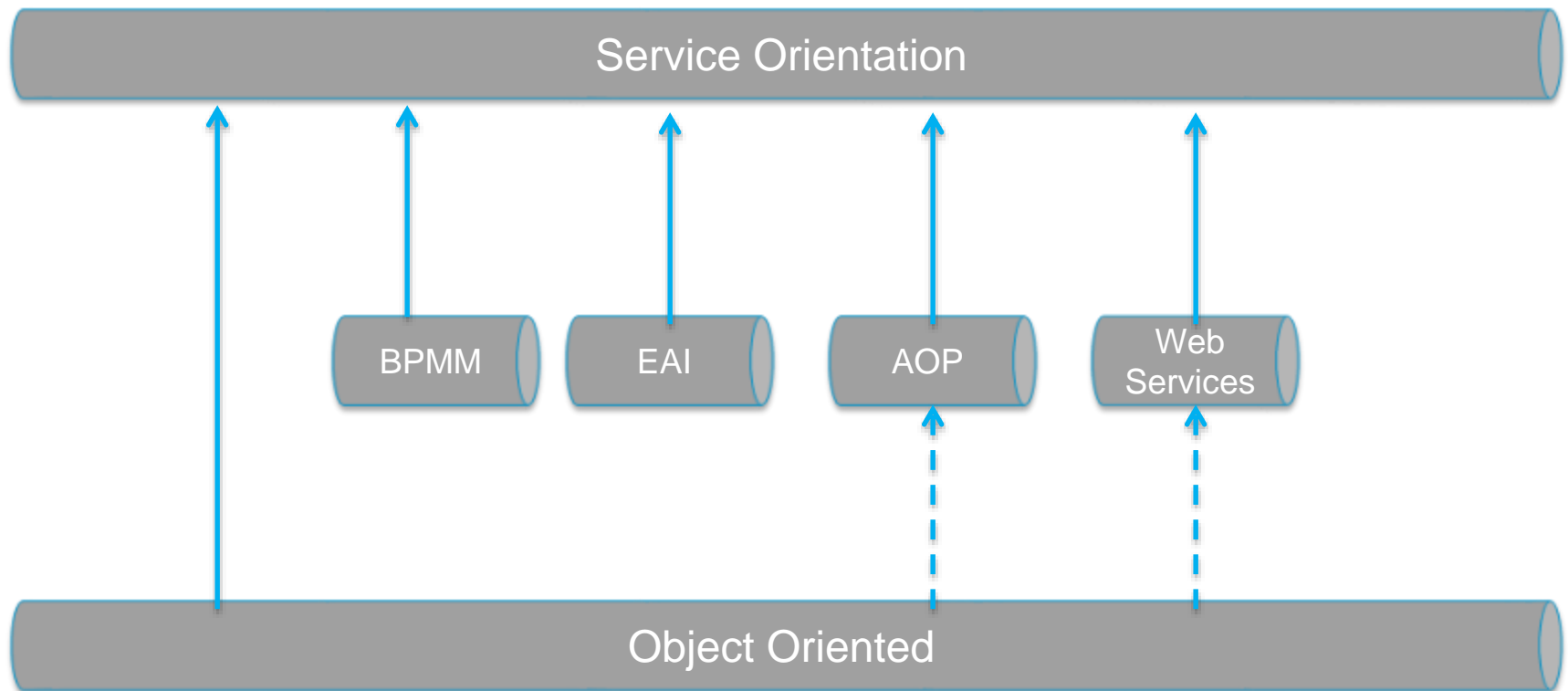
Principles of SOA
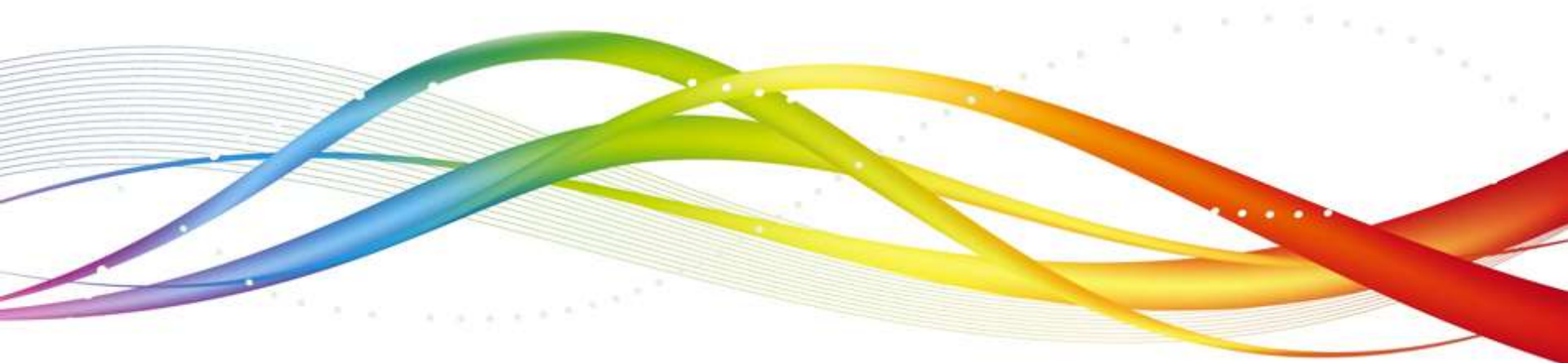
Service Orientation

- Service Orientation describes 8 principles for Service Design

  - *Standardized Service Contract*

  - *Loose Coupling*

  - *Abstraction*

  - *Reusability*

  - *Autonomy*

  - *Statelessness*

  - *Discoverability*

  - *Composability*

Service Orientation

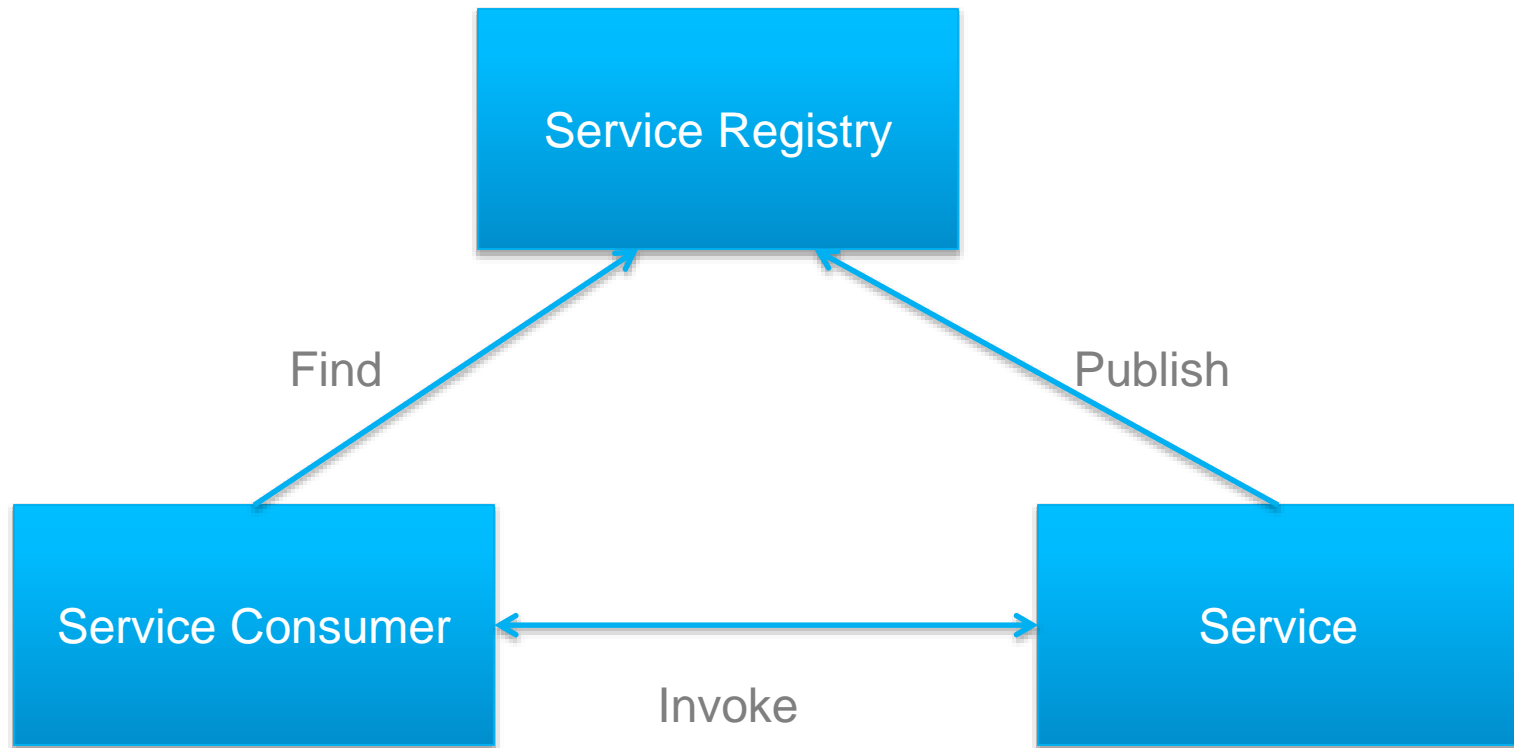- Service Orientation is influenced by many technology concepts:

Types of Service Oriented Architecture

Types of Service Oriented Architecture
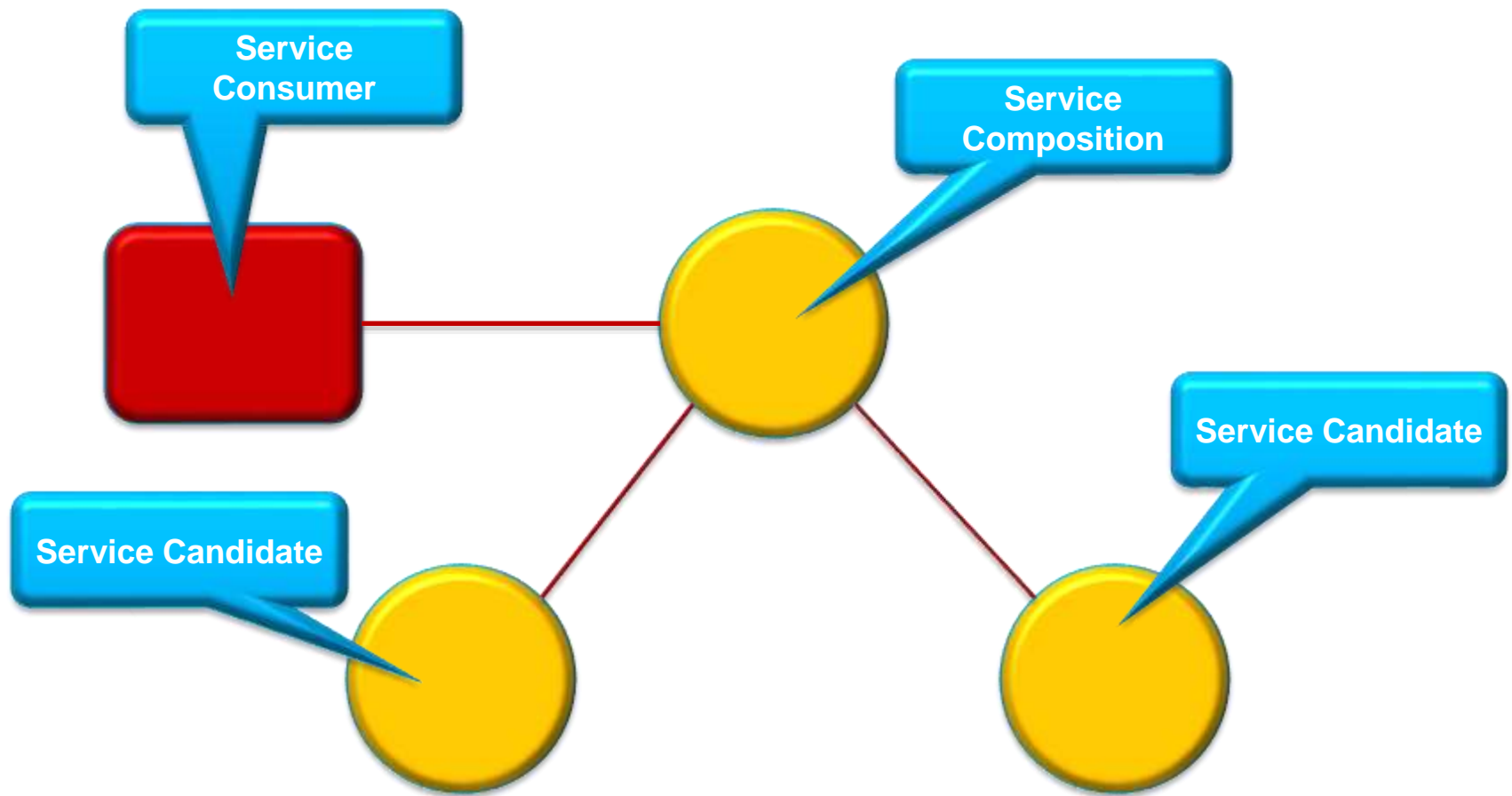
- There are four primary types of Service Oriented Architecture

    - *Service Architecture*

    - *Service Composition Architecture*

    - *Service Inventory Architecture*

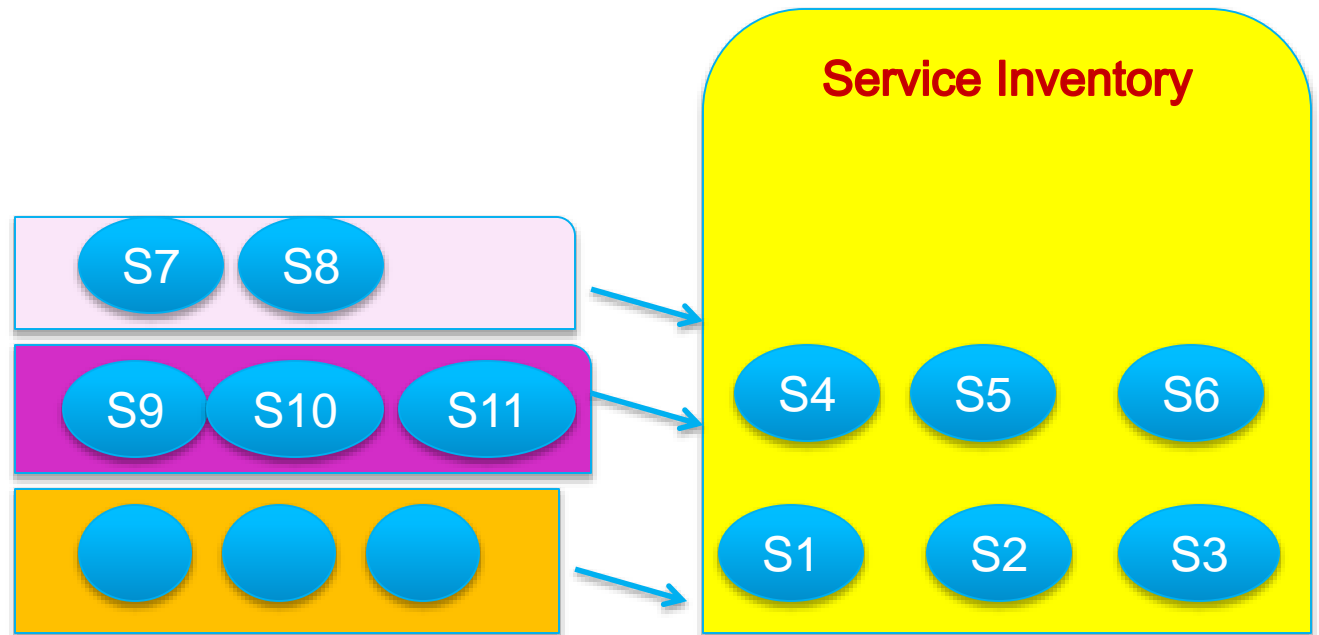   - *Service Oriented Enterprise Architecture*

Service Architecture

Service Composition Architecture
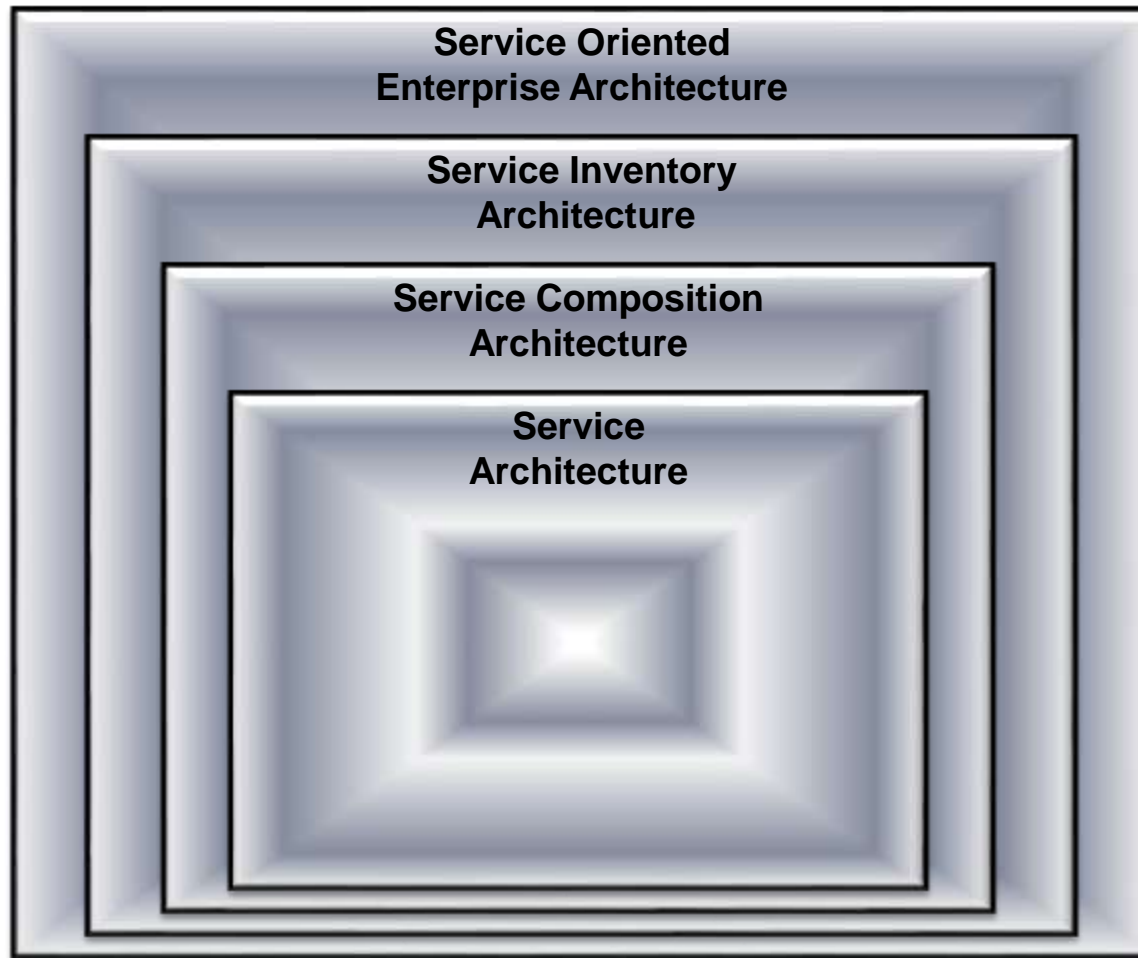
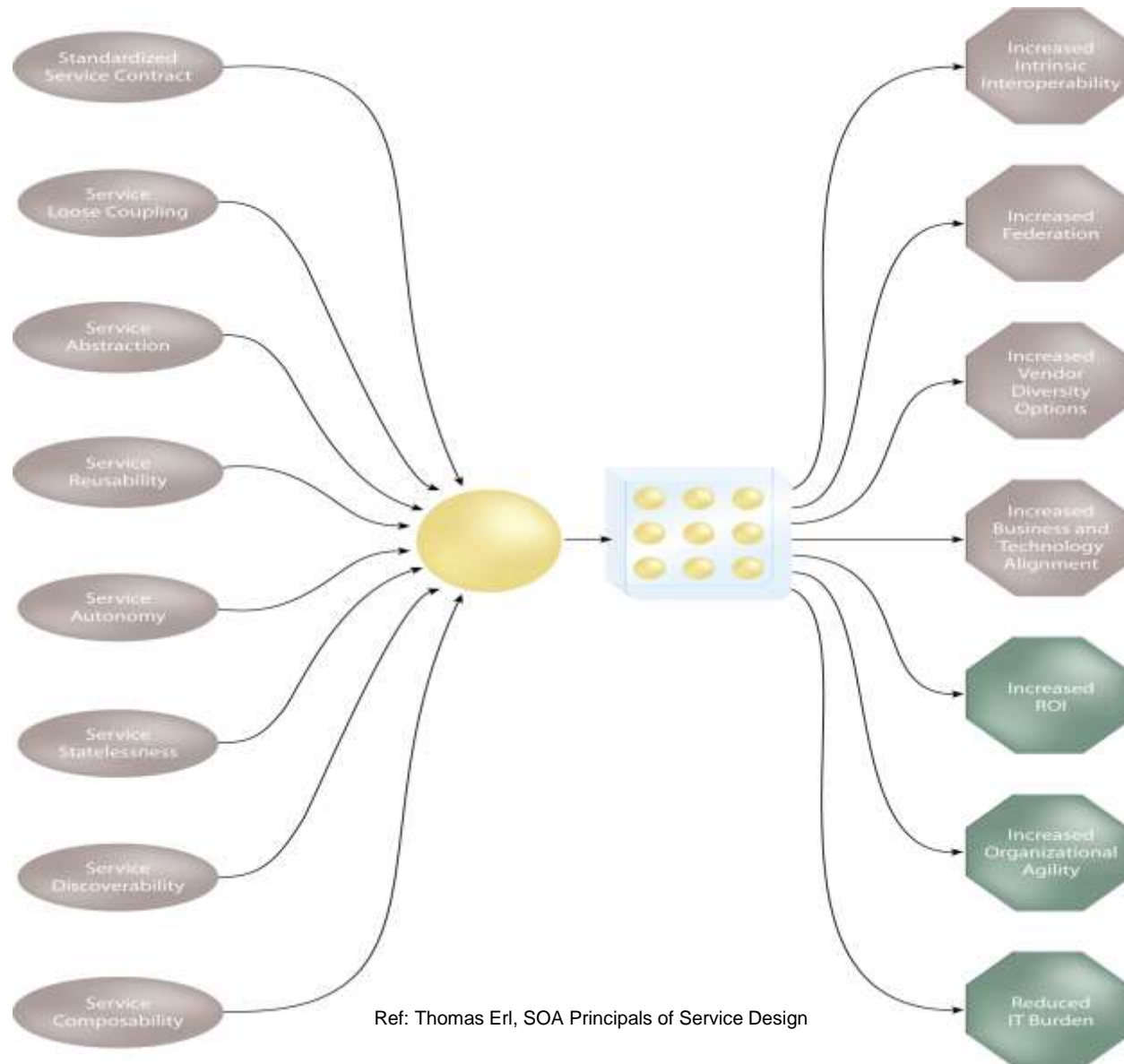- ## Service Composition

Service Inventory Architecture

Service-Oriented Enterprise Architecture

Service Oriented Enterprise Architecture incorporates service, composition and inventory architectures and any enterprise-wide technological resources accessed by these architectures

Types of Service Oriented Architecture (Contd.).

Service Oriented
Enterprise Architecture

Service Inventory
Architecture

Service Composition
Architecture

Service
Architecture

Realization of SOA

Ref: Thomas Erl, SOA Principals of Service Design

Quiz

1.What is Service-oriented Architecture (SOA)?
a. Programming language
b. Software architecture
c. UI concept
d. Networking Standard

Option b is right

2. Which of the following statements is true?
a. A service provider is responsible for the business aspects of the published web service, such as pricing
b. A service provider is also known as the "service registry"
c. A service provider creates and publishes Web services, together with their interface and access description

Option a and c are right

Summary

- In this module, you were able to

  - Describe the basics of SOA
  - Describe the core principles of SOA
  - Describe the different types of SOA

1. References

1. Thomas Erl. *SOA Principals of Service Design.* Canada: Prentice Hall, 2009.

2. Thomas Erl. *Service Oriented Architecture, Concept, Technology and Design.* Canada: Prentice Hall, 2009.

Thank You