SERVICE ORIENTED ARCHITECTURE

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Introduction 1/2

SOA is a style of software design. SOA is a design for linking business and computational resources (principally organizations, applications and data) on demand to achieve the desired results for service consumers

OASIS[1] [1] defines SOA as the following: *A paradigm for organizing and utilizing distributed capabilities that may be under the control of different ownership domains. It provides a uniform means to offer, discover, interact with and use capabilities to produce desired effects consistent with measurable preconditions and expectations.*

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1 Organization for the advancement of structured information standards.

Introduction 2/2

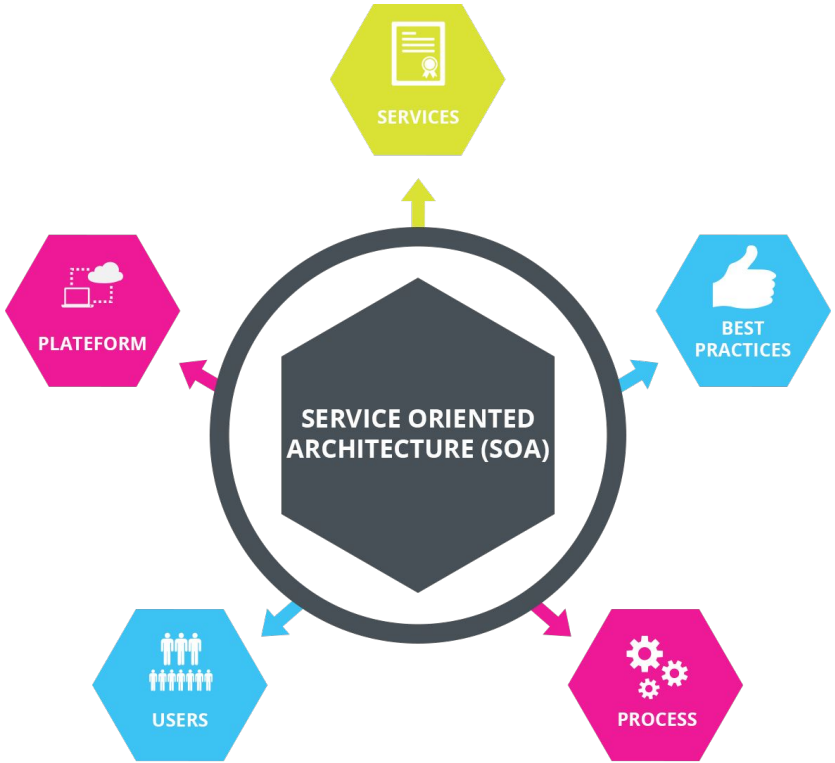
Service Oriented Architecture (SOA) is an evolution of the Component Based Architecture, Interface Based Design (Object Oriented) and Distributed Systems of the 1990s, such as DCOM [2], CORBA [2], J2EE [3] and the Internet in general.

SOA does not necessarily mean Web Services such as .NET, J2EE, CORBA or ebXML. These are instead specialized SOA implementations that embody the core aspects of a service-oriented approach to architecture. Each of these implementations extends the basic SOA Reference Model.

The Benefits of Service-Oriented Architecture

- SOA architecture allows technology and business areas to get aligned and grow closer
- SOA enables the development of applications that are easier to handle and more secure, since it provides a common infrastructure and documentation to develop services, with the opportunity to add new features.
- Thanks to SOA, it is possible to minimise data loss, since it offers security and high availability.
- SOA architecture allows for a faster application development, in a more cost-effective manner, thanks to the flexible integration of all data.
- SOA helps organizations improve their agility and flexibility

Details of SOA

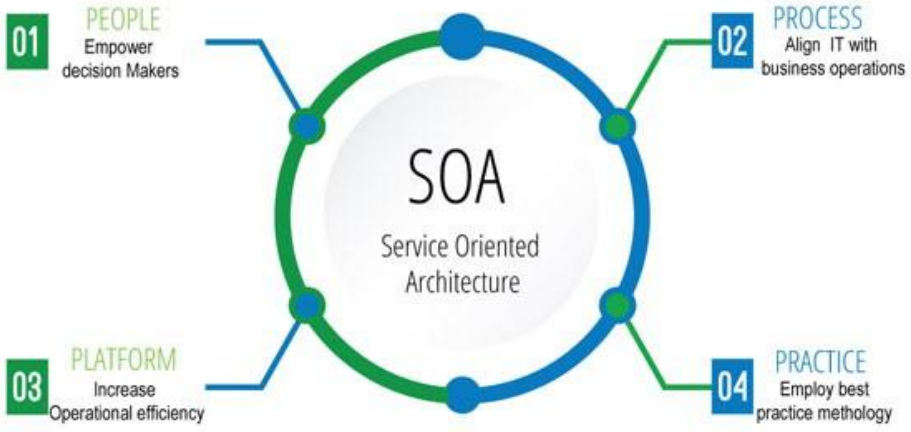


Service-Oriented Architecture (SOA) is a style of software design where services are provided to the other components by application components, through a communication protocol over a network. Its principles are independent of vendors and other technologies. In service oriented architecture, a number of services communicate with each other, in one of two ways: through passing data or through two or more services coordinating an activity.

Details of SOA

There are three roles in each of the Service-Oriented Architecture building blocks:

- service provider;
- service broker, service registry, service repository; and
- service requester/consumer.



SOA Characteristics

1. Discoverable and Dynamically Bound: SOA supports the concept of service discovery. A service consumer that needs a service discovers what service to use based on a set of criteria at runtime.

2. Self-Contained and Modular: Services are self-contained and modular. One of the most important aspects of SOA is the concept of modularity.

3. Interoperability: Service-oriented architecture stresses interoperability, the ability of systems using different platforms and languages to communicate with each other.

4. Loose Coupling: Coupling refers to the number of dependencies between modules. Loosely coupled modules have a few well known dependencies.

SOA Characteristics

5. Location Transparency: Location transparency is a key characteristic of service-oriented architecture. Consumers of a service do not know a service's location until they locate it in the registry.

6. Composability: A service's composability is related to its modular structure. Modular structure enables services to be assembled into applications the developer had no notion of when designing the service.

7. Self-Healing: A self-healing system is one that has the ability to recover from errors without human intervention during execution.

Why SOA is Important ?

1. Service-Oriented Architecture promote to create reusable code .
2. Service-Oriented Architecture promote interaction.
3. Service-Oriented Architecture promote scalability.
4. Service-Oriented Architecture help to reduce costs.

Known Implementation

As we know the nature of the services themselves may vary, a common standard for declaring a service is desirable when building an infrastructure. Two such standards exist today:

- W3C's Web Services Description Language (WSDL) and
- ebXML's Collaboration Protocol Profile.

Version 2.0 of WSDL is impressive in its completeness and ease of implementation; however, it only covers the basic aspects of service description.

ebXML is a joint SOA initiative between UN/CEFACT [6] and OASIS [1] . In addition to providing technical components, the Collaboration Protocol Profile was developed to meet the specific needs of electronic business that involve service-oriented interactions between legal enterprises.

Why do we Need SOA ?

It could be used for solving various business needs:

- For Developing Independent Services: It is required if our business need is to develop multiple services which are independent of each other. However, these services can still communicate with each other.

- To Expose Data: Exposing the functionality of the software as a service is easier to implement if we are using SOA.

- To Develop Reusable Service: If our requirement is to develop a reusable service, then SOA is perfect for this. It could be used to make independent, reliable and reusable services.

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Any Questions?