Publication date : 06/26/2024

# Course : Service-oriented architecture (SOA), overview

*Seminar - 2d - 14h00 - Ref. OSA*
*Price : 1850 € E.T.*

3,9 / 5

The aim of SOA is to move from an IS seen as a collection of applications to service-oriented computing, in order to improve the responsiveness of the Information System. This seminar presents the various standards, concepts, techniques and tools required to implement an SOA.

## Teaching objectives

**At the end of the training, the participant will be able to:**

- Understand the benefits of adopting an SOA approach
- Discover the components, services and layers of an SOA architecture
- Recognize the main technical building blocks of SOA architecture
- Discover SOA design and architecture approaches and models
- Identify key market players and products

## Intended audience

Business and IT decision-makers looking for an overview of the SOA landscape and opportunities for the enterprise.

## Prerequisites

Basic knowledge of application architecture and Web Services technologies.

## Course schedule

**PARTICIPANTS**

Business and IT decision-makers looking for an overview of the SOA landscape and opportunities for the enterprise.

**PREREQUISITES**

Basic knowledge of application architecture and Web Services technologies.

**TRAINER QUALIFICATIONS**

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

**ASSESSMENT TERMS**

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

## 1 Introduction: why SOA?

- What's at stake for the company?
- Multi-level architectures and business components: the limits of traditional middleware interoperability.
- Web services and IS interoperability.
- From components to service-oriented architectures (SOA): the limits of IS project management.
- Introduction to services, service contracts, service orchestration, enterprise service bus (ESB)...
- Benefits: alignment of IS with business processes, cost reduction, standardization, reuse, interoperability.

## 2 SOA architecture overview

- SOA architecture components and layers.
- Data access service, transaction management.
- Process management, user interaction, security, administration, supervision...
- Web Oriented Architecture (WOA) and microservices-based architectures.
- The principle of weak coupling between service provider and consumer.
- Micro-services-based architectures.
- Organizational and IS evolution.
- Service-oriented architecture (SOA) vs. microservices.

## 3 Services and processes

- The concept of service.
- Service exposure, weak coupling, synchronism versus asynchronism.
- Service provider and consumer, service contract, service typology (business, technical...).
- Differences between services and components, specifying quality of service.
- Business application components.
- Unit of operation in SOA, contract implementation, component dependencies and orchestration.
- Mapping business processes to services.
- Aligning IS with business processes: the importance of business modeling processes.
- OMG's BPMN modeling standard.
- Positioning in relation to the BPM.
- Move from a business process model to a service.

**TEACHING AIDS AND TECHNICAL RESOURCES**

• The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.

• At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.

• A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

**TERMS AND DEADLINES**

Registration must be completed 24 hours before the start of the training.

**ACCESSIBILITY FOR PEOPLE WITH DISABILITIES**

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

## 4 Technical aspects

- Implementation of Web Services (Java EE, .NET, PHP, etc.).
- XML foundations.
- XML schema for interoperability and application data description.
- Service description with WSDL and invocation with SOAP.
- RESTfull approach.
- Search and publish services (directories).
- Design Patterns for Web Services.
- Link between SOA and EAI.
- Message Oriented Middleware (MOM).
- Enterprise Service Bus: the ESB concept, ESB versus SOA. An update on standards.
- Web services orchestration and business process integration (BPM, BPEL...).
- Standards and their level of implementation: OMG, W3C, OASIS, WS-I...
- Security and Web Services (WS-Security), transaction management (WS-Coordination).
- Message delivery (WS-ReliableMessaging), interoperability and message identification (WS-Addressing).
- Links with other IS components and emerging technologies: Cloud, mobility, Big Data.

## 5 SOA architecture and design models

- SOA as an integration model and Enterprise Integration Patterns (EIP).
- SOA patterns.
- Attempts at standardized SCA and SDO approaches.
- Can REST be used to design an SOA architecture?
- The question of orchestration and the place of BPEL, BPMN and traditional development technologies.

## 6 SOA IS governance

- The SOA model's impact on the organization.
- Organize initial implementation and reuse with an SOA center of excellence.
- Key roles: business manager, technical manager, domain architect, technical architect.
- Typical governance activities: managing a service application, its implementation and evolution.
- Move from providing a service on demand to anticipating needs.
- How do you stay Agile with what appears to be a highly centralized model?
- Pitfalls and mistakes to avoid.

## 7 SOA design methodology

- Links between SOA and the Object-oriented approach.
- Methods available on the market: UP, EUP, TOGAF, NAF, Praxeme...
- SOA project lifecycle: strategic vision and organizational process.
- Urbanization metaphor and levels of aggregation.
- Conceptual model of an SOA.
- Modeling services within application architecture with UML.
- The transition from organizational processes to business services, and from business services to application services.
- OMG's MDA approach.

### 8 Market players and products

- Typology of existing products.
- Enterprise Service Bus (ESB).
- EAI platforms for new Web Services functionalities (Tibco, WebMethods...).
- SOA orchestrators, high layers for directories, orchestration, administration.
- Platform suppliers (IBM, BEA, Oracle, etc.).
- Cloud players (Amazon, Google...).
- BPMN modelers and their orchestration capabilities.
- Supervision tools (business and technical) and administration solutions.
- Open Source projects and offerings: Apache ServiceMix/FUSE, Mule, Celtix, Synapse...

## Dates and locations

**REMOTE CLASS**
2026 : 16 June, 29 Sep., 8 Dec.

**PARIS LA DÉFENSE**
2026 : 15 June, 22 Sep., 1 Dec.