

Hands-on course , 4
day(s)
Ref : SOB

Participants

Project managers, architects.

Pre-requisites

Good knowledge of multilevel
architectures, software design
and UML

Next sessions

SOA, Design of a service Oriented Architecture

OBJECTIVES

This training shows how to design a service oriented architecture by using the principles of the method PRAXEME. You will understand the structure of the Web Services, the orchestration of the services and the relationship with the component approaches. The products of the market and the open source solutions will be detailed.

[1\) Introduction](#)

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[3\) Introduction to the methodological approach](#)

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[5\) Business process and SI use cases](#)

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1) Introduction

- The stakes of companies and the MDA approach of OMG.
- Multi-tiers architecture, business components: interoperability limits of classical middleware.
- Web services and SI interoperability.
- From components to services oriented architectures (SOA): Limits of the SI's management by projects, introduction to services, services contracts, services orchestration, the SOA approach benefices.

2) The concepts of SOA

- Conceptual model of a SOA.
- Business service concepts: Service exposition, loose-coupling, synchronous vs asynchronous model, service provider and consumer, service contract, services typology, services vs components.
- Business components: Exploitation unit, contract implementation, components dependency and orchestration.

3) Introduction to the methodological approach

- The different approaches and Meta models: the Zachman framework, the methodological axes of the RUP, the PRAXEME approach, development process.
- Life cycle of a SOA project: strategically vision and organisational macro process, organisational process, technical implementation, the metaphor of urban planning and aggregation level, the PRAXEME's vocabulary: logical fabric, logical workshop and logical engine.

4) Semantic model of the domain

- Analyse of the business domain.
- Modeling of the reference objects and their life cycle, model structuring and relationship with urban planning.

5) Business process and SI use cases

- Introduction to the pragmatic model.
- Business process analyse: use of activity diagrams, relation with the semantic model, pragmatic classes.
- The SI's use cases.
- The geographic model.

6) Definition of the logical architecture

- Derivation of the semantic and pragmatic models to the logical architecture: management of navigation, 1..n, n..m relationships, associative class, structuring rules of the class diagram.
- Specification of the logical engines and the logical services: use of the MDA approach, grouping in logical workshop and fabrics, relation with urban planning.
- Logical services definition: pre-condition, post-condition, exception or signals, input and output messages, definition of associated complex types, management of variants and contextualization.
- Using contracts, QoS specification, metrics of Quality.
- Integration of existing applications.

7) Technical architecture definition

- Implementation of the logical model with components: components of the layers of a SOA, process components, service façade, factories and types of factory, the MDA approach.
- Versions management, interactions mode and input/output messages, transactions management and compensation service.
- Description of services with WSDL, SOAP invocation: building interoperable XML schemas, service web design patterns.
- Service web infrastructure (WS-*), management of security, transaction, reliability, use of UDDI repository.
- Service web orchestration and integration of business process: presentation of the BPEL, BPMN standards: creation of visual representation of a process and execution of BPEL scripts, transaction and execution context management.

- Composite application management: introduction to the Service Component Architecture (SCA) standard.
- The Enterprise Service Bus (ESB): concepts of ESB, introduction to the JBI.

8) Market actors and products

- Typology of the existing products and selection criteria.
- The SOA products of the main actors.
- Open Source products.