sages

Course code: **ESB/SMIX**

Course title: **Enterprise Service Bus: Apache ServiceMix or JBoss ESB**

Days: 3

Description:

Course intended for:

The training is aimed at Java programmers, system analysts and architects who want to learn the art of building the Enterprise Service Bus (ESB).

Course objective:

The Goal of the training is to familiarize participants with basic concepts and standards related to systems integration and ESB, to learn Enterprise Application Integration (EAI) patterns and methods of implementation of these patterns on a particular ESB, to present good and bad practices of integration and tools available on the market. Training is carried out in several variants - for programmers, system analysts, architects. Depending on the training group, the main emphasis is on theoretical issues or practical implementation and integration solutions.

Requirements:

Participants are required to have at least basic programming skills in Java, at least basic knowledge of web service and XML processing technologies. Basic knowledge of JEE is recommended.

Course parameters:

3*7 hours of lectures and workshops at a ratio of 1:3. During the workshops participants will implement examples illustrating the realization of the most popular EAI patterns. Group size: max. 8-10 people

Course curriculum:

1. The big picture:
    I. presentation of basic concepts and ideas related to the overall integration: the silo, SOA, EIP, MEP, EAI, ESB, data bus, ETL, EDA, CMD, MOM, integration broker and integration adapter, orchestration, synchronous / asynchronous /

offline integration, JBI, SCA, WS- * etc.

II. presentation of differences between enterprise integration platform, integration broker, integration platform, communication server etc.

III. pros and cons of the integration platform implementation, why to implement the enterprise integration platform, migration of existing systems "on the integration bus"

2. Discussion of features and functionalities that ESB provides:

I. Location transparency

II. Conversion of transport protocols

III. Transformation of messages

IV. Routing of Messages

V. Enhancement of Messages

VI. Security

VII. Monitoring and Management

VIII. Performance

IX. Interoperability

X. Standardization

3. Review and comparison of commercially available tools and technologies:

I. Commercial and non-commercial

II. Based on the stack: JEE, .NET, other

III. Mature and developing

IV. Software and hardware

V. More and less popular

VI. By other criteria's

4. Discussion of the chosen ESB platform:

I. Basic concepts and terminology for the particular ESB platform

II. Main components and architecture of the particular ESB platform

III. Service mechanisms provided by a given platform (implementation mechanisms: high availability, failure tolerance, load balancing, persistence, transactions, security)

IV. Similarities and differences to other ESB platforms

V. Compliance with integration standards (JBI, SCA, ...)

VI. Sources of knowledge

5. Most common integration patterns

I. Channel

II. Message

III. Service

IV. Filter

V. Router

VI. Transformer

VII. Endpoint

6. Working with messages

I. Structure of the message

II. Types and formats of messages

III. Transformation and conversion of messages

IV. Validation of messages

V. Persistence of messages

7. Working with services

I. Construction of the services

12. Performance
    I. Tuning parameters of services: transport, number of threads, etc.
    II. Cache
    III. Tuning of the JVM parameters
    IV. Tuning the application server, the server queues, databases
13. Advanced Services provided on ESB
    I. BPM
    II. BRMS
    III. CEP
14. Overview of the most commonly used connectors and integration adapters.
15. Good and bad practices of building integration and data buses, recommended design patterns, recommended communication protocols.