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Definitions

- **S**ervice **O**riented **A**rchitecture
- **B**usiness **P**rocess **Execution Language**
- **Enterprise Service Bus**
- **Java Business Integration**

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When things go bad

- Companies spend over 75% of IT investiment on Integration
- There's too many duplicated code across the companies
- Companies might have hundreds of corporate systems using distinct technologies/protocols

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The Accidental Architecture

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Collateral damage

- Unreliability
- Performance
- Troubleshooting
- Redundancy
- Billing holes
- Management

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SOA at Corporate level

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Master, can you tell me more
about this SOA
Technology?

A technology it is not.
A
Software Engineering
Practice it is.

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SOA – So what it's all about?

- Decoupling
- Re-use
- Governance
- Interoperability
- Integration

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SOA Layers

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Services

- A service must have a well definied interface
- A service must follow a common protocol
- A service must be an auto-contained entity which can relate with other services
- A service must be exposed to the world
- A service shall never depend on it's implementation

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But what is a Service?

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Services does not depend on their implementation

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So, I'm gonna call them:
WEBSERVICES

Of course you can Luke!

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WebServices Explained

Has a well defined interface

```
<?xml version="1.0"?>
<definitions name="CurrencyExchangeService"
  targetNamespace="http://www.xmethods.net/sd/CurrencyExchangeService.wsdl"
  xmlns:tns="http://www.xmethods.net/sd/CurrencyExchangeService.wsdl"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns="http://schemas.xmlsoap.org/wsdl/">
```

Uses a common protocol

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Wow! I'm almost there!
I've achieved **decoupling** since implementation doesn't matter anymore.
I have total **reuse** of my existent services (all I have to do is expose them)
And by having a common protocol (SOAP) I have full **interoperability**

But I'm still missing **governance** and **Integration**

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The Service Mess

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Master, there are too many services. Isn't there any way to organize this mess?

Yes! And that's called **Orchestration**

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Orchestration

- WebServices orchestration is about composing existent webservices in order to define a **process**
- This orchestration is made through a declarative manner (non-programmatic)
- WS-BPEL is the standard execution language used to orchestrate WebServices

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Orchestration

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Choreography

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Ok, I have **services** and I have **orientation** through an **orchestration** process. But I still need an **architecture** to deploy that

And I still can't get how to answer the **governance** and **Integration** issues

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Introducing Enterprise Service Bus

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ESB Definition

- An ESB provides the infrastructure for releasing service-oriented architecture
- Provides the runtime environment for deploying your services
- Services do not interact with each other, rather the ESB acts as a mediator
- All traffic through the ESB uses the concept of messages, and those can be routed through an NMR service

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ESB and Application Servers

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ESB Example

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Reliable messaging

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It's amazing how things fits together. Now I have my **architecture** and also through the ESB conteiner I've found a way of **integration**

Still… What could be done about **governance** ???

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Introducing JBI

- It's a standard guideline to develop ESB
- Derivate from the JSR 208
- Defines a plug-in based architecture where services can be plugged into its runtime environment
- Services expose their selves and JBI routes messages to them

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JBI Architecture

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ServiceMix

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I get it, I get it! So **JBI** is the path to create pluggable **ESB**, which in turn is a reference **architecture** for my **services**

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How does BPEL and ESB fit together

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Beware the dark side

- WebServices specification lacks transaction and security specs
- Today ESBs are too imature or just a assembly of pre-existent technology
- ROI may take a while, 12-18 months should be the expected time
- There's too much hype around the SOA buzzword
- Everybody claims to be a SOA expert (there's a dumbass claiming it right now)
- There are no silver bullets (don't forget the EJB proposal 7 years ago)