

Introduction to ESB and Petals ESB

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What is ESB?

Before we talk about ESB, it is a better idea to talk about SOA.

What is ~~ESB~~ SOA?

- ▶ acronym for Service-Oriented Architecture
- ▶ According Eben Hewitt [Hewitt 2009],

“SOA is a kind of architecture that uses services as building blocks to facilitate enterprise integration and component reuse through loose coupling.”

- ▶ According James Bean [Bean 2009],

“A service-oriented architecture (SOA) is a combination of consumers and services that collaborate, is supported by a managed set of capabilities, is guided by principles and is governed by supporting standards.”

~~What is ESB SOA?~~

Back to ESB

- ▶ acronym for Enterprise Service Bus
- ▶ ESB is the backbone of SOA. [Hewitt 2009]
- ▶ From same idea of hardware bus, ESB is responsible for transport, network, routing, delivery of messages and manage access to applications and services.
- ▶ ESB is a software architecture for middleware that provides fundamental services for complex architectures or provides features required to SOA. [SearchSOA.com 2010]

"In essence, ESB does for distributed heterogeneous back end services and applications and distributed heterogeneous front-end users and information consumers what middleware is really supposed to do: hide complexity, simplify access, allow developers to use generic, canonical forms of query, access and interaction, handling the complex details in the background."

[SearchSOA.com 2010]

Why use ESB?

[Hewitt 2009]

- ▶ SOA without ESB repeats the past complexities of systems, where each node requires an adapter to connect to every other node, making this nodes tightly-coupled.
- ▶ a ESB provides a layer of abstraction, then clients can talk only to the bus and not to the location of service endpoint itself. And, as a integration point, the ESB can perform necessary transformations to ensure that the legacy software will continue to work.
- ▶ services compositions can be exposed as single services, meanwhile the esb is managing the invocation of a set of services to fulfill the request.



- ▶ **Manual Integration:** The communications between nodes are created on demand. Hard maintain on large scale.



- ▶ **Using ESB:** Use standard service integration. Greater adaptability and agile development.



[petals.ow2.org 2010]

- ▶ Open Source ESB.
- ▶ complies with web standards, as JBI specifications for modular architecture and BPEL for processes orchestration.
- ▶ ensures runtime scalability in a distributed architecture.
- ▶ no rigidity point to point integration, in other words, loosely-coupled integration.
- ▶ hot service deployment and hot component installation.

Success story

DGME - Direction Générale pour la modernisation de l'Etat (Directorate General for the Modernisation of the French State)

- ▶ The RITA project must provide to members of the public administration electronically accessible shared tools and services, via the online portal mon.service-public.fr.
- ▶ PEtALS ESB was choosed, because it enables easy interation, it has potential to expose future services to public, and it enables this features in a open and standard way.

Others success stories

- ▶ ACOSS: a french national agency responsible for contributions collecting for Social Security, cash management and cash distribution to health and welfare institutions.
- ▶ Orange TV: Orange is a telecom leader in Europe and offers Broadband TV. The objetive was anticipate and support the growth of users.

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Possible Questions

What is a middleware?

- ▶ Any programming that serves to join or mediate between two separated existing programs.

What is JBI?

- ▶ JBI is acronym for Java Business Integration, a specification published by Sun as JSR 208, that defines standards-based architecture for integration.