INRIA ADT *galaxy*
*An open agile SOA platform*

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**galaxy**, an open SOA R&D platform enabling agility

**Open**
- An open internal and multidisciplinary collaboration
- Software development, under open source licensing model
  - Relationships with open source communities ➔ Eclipse, OW2 Local Chapter Europe

**SOA** (Service-Oriented Architecture)
- A paradigm facilitating collaboration b/w several teams and expertise
- A coherent set of technologies developed by INRIA
- A personality and a visibility for INRIA technologies

An assembly and integration based on **agility** features
- Interactions design / runtime
- Interactions multi-layers
SOA, some basic principles
“Abstraction, Interface, Orchestration”

A set of architectural principles
• The SOA paradigm (W3C)
• OASIS SOA Reference Model

An “abstraction for encapsulating functions”
• Exposing (contract, interface) and reusing a service
• Loosely coupling
• Orchestration
• Technology agnostic

An agile and collaborative approach
• Designing agile and well-adapted “business” solutions
• Orchestrating services for composing processes
• A way for developing and integrating applications
• OMG (SOA Consortium)
**SOA**, some technological standards

**WSDL**
- Web Service Description Language

**SCA**
- Service Component Architecture

**Relationships with process-oriented technologies**
- BPMN (Business Process Modelling Notation)
- BPEL (Business Process Execution Language)

**Relationships with distributed technologies**
- JBI (Java Business Integration / ESB – Enterprise Service Bus)
- OSGi (Open Services Gateway Initiative)
- Grid and Cloud Computing
Agility through SOA

Design Space

- Infrastructure
- SOA @ IT Level
- SOA @ Business Level

Runtime Space

- Infrastructure
- SOA @ IT Level
- SOA @ Business Level

Modelling Information

Automatic Correlation

Intentions

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ADT galaxy (SOA)
Adam-Ascola-Ecoo-Oasis-Sardes-Triskell-Tuvalu
Grenoble-Lille-Nancy-Rennes-Sophia
galaxy = «model, execute, monitor, improve»
Agility, what for?

☑️ Build an **end-to-end** SOA approach

☑️ **Unify** your components, services and processes
  • From designing a process to executing component assemblies through an composite application architecture (SCA-compliant)

☑️ **Dynamically orchestrate** your services
  • Agile distribution of a BPEL execution

☑️ **Get benefits from highly adaptable & dynamic** architectures
  • A modular conception of systems with native reconfiguration features (Fractal)
  • A standard programming model for distributed systems (GCM, ETSI)
  • Agile QoS-based reconfiguration features
galaxy, a collaborative and federative project
galaxy, a concurrent process
Integration & demonstrations
For more information

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Web site: http://galaxy.inria.fr
http://fractal.ow2.org (/fscript)
http://frascati.ow2.org
http://www.kermeta.org
http://proactive.inria.fr
http://wildcat.ow2.org
http://www.eclipse.org/stp/im/
http://gforge.inria.fr
**galaxy scenarios**

1. **galaxy, FROM DESIGN TO RUNTIME**
   an integrated agile SOA/BPM platform, from design to runtime

2. **galaxy, DYNAMIC SERVICE EXECUTION**
   a platform enabling an agile distribution of BPEL

3. **galaxy, QOS PROVISIONING**
   a platform enabling an agile QoS-based reconfiguration
Smart travel
demonstrator overview

- Exchange rate
- Weather
- Translation
- Advice
- Display result
SOA/BPM platform, from design to runtime

Scenario #1

1. BPMN to SCA
2. Select implementation
3. Deploy

Runtime SCA
SOA/BPM platform, from design to runtime

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SOA/BPM platform, from design to runtime
Scenario #1

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Runtime SCA

SCA Component
Distributed BPEL
Scenario #2
QoS-based reconfiguration

Scenario #3
QoS-based reconfiguration
Scenario #3
QoS-based reconfiguration

Scenario #3

Client

Monitoring

Runtime SCA

SCA Component

GCM/ProActive Component
galaxy demonstration

A short video online