Migration towards Service Oriented Architectures

Benevol2006

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Outline

1 Introduction
   - Problem Statement
   - Project Goals
   - General Approach

2 Research Topics
   - Architecture Evaluation
   - Regression Testing
   - Service Identification
   - Workflow Mining

3 Conclusions
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3 Conclusions
Main Goal  Business agility

Benefit  Matching needs & capabilities

Challenge  Bridging gap between business and IT
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**Benefit**  Matching needs & capabilities

**Challenge**  Bridging gap between business and IT

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**SOA Benefits and Challenges**

- **Demand**
- **Services**
- **Demand**
- **Supply**

- **Business**
- **IT**
SOA Benefits and Challenges

Main Goal  Business agility

Benefit  Matching needs & capabilities

Challenge  Bridging gap between business and IT

Demand  Services

Supply  Business

IT
SOA Benefits and Challenges

Main Goal: Business agility

Benefit: Matching needs & capabilities

Challenge: Bridging gap between business and IT
Two Project Goals

1. Apply existing software re- and reverse engineering techniques on industrial cases
2. Demonstrate SOA as enabler of a business strategy

⇒ ‘Best (and worst) practices’ on migrating to a service oriented architecture
Two Project Goals

1. Apply existing software re- and reverse engineering techniques on industrial cases

2. Demonstrate SOA as enabler of a business strategy

⇒ ‘Best (and worst) practices’ on migrating to a service oriented architecture
Migration Approach

- ‘as is’
- SOA
- a gap

Comprehend

- ‘as is’+
- the gap

Quantify

- adjusted
- target gap

Adjust

Decrease

Specific Goals
Migration Approach

- 'as is'
- comprehend
- a gap
- SOA
- quantify
- the gap
- SOA
- adjust
- decrease
- target gap
- adjusted
- Specific Goals

Specific Goals
Migration Approach

- 'as is' comprehends 'as is' + the gap
- a gap quantifies the gap
- SOA adjusted target gap
- Specific Goals

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Migration Approach

- 'as is'
- 'as is' + comprehend
- a gap quantify
- SOA
- Specific Goals
- adjusted
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- SOA
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Architecture Evaluation

Why relevant?

- Retrieve the foundations of the current architecture.
- To help define the new architecture.

How can we help?

- top-down Architecture Tradeoff Analysis Method
- bottom-up Polymetric views
Why relevant?

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Regression Testing

Why relevant?
- Migration should be behaviour preserving.
- Interfaces more important than ever for service testability.

How can we help?
- Unit testing
- Interface testing
- Defining interfaces (WSDL, OWL, UML, ...)
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Service Identification

Why relevant?
- What is a service?
- How to discover a service?

How can we help?
- Key Concept Identification (ARRIBA)
- Component Clustering
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Workflow Mining

Why relevant?
- End-to-end monitoring
- Traceability of business processes
- Business process vs. IT implementation

How can we help?
- Pattern mining on event logs
- Modelling of service interactions (BPEL, UML, ...)
Workflow Mining

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Goal  supporting migration towards SOA

Means  by applying your techniques

Added Value  on industrial cases