Universität Heidelberg
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Bachelor-Arbeit

Messaging Architecture for Integration of Customer Self-Services

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I assure that I have written this bachelor thesis on my own and only used the specified sources and resources and that I followed the principles and recommendations "Responsibility in Science" of the University of Heidelberg.

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Zusammenfassung

Abstract

Contents

1 Introduction

1.1 Motivation

1. Example(s) of CSS Problems Today
    a) CSS incomplete in governmental administration
        i. identity card renewal
        ii. change of home address
        iii. change of residency status
    b) CSS incomplete in universities
        i. transfer of profile: grades, certificates, etc. between universities
        ii. applications in general (study place, semester abroad, ...)
    c) CSS different for each enterprise / organization
        i. multiple identities
        ii. multiple profiles => addresses, phone numbers, mail address
        iii. time consuming to manage same information in all systems
2. Solution for CSS Problems
    a) One CSS providing company, which integrates multiple / all EA
    b) One identity, profile, address, phone number location
    c) Easy management of identity used by multiple enterprises / organizations
3. Why is integration necessary?
    a) Each enterprise / organization has its own identities, profiles, etc. in multiple systems
    b) The CSS providing company needs to manage those systems / data of each enterprise / organization
    c) Enterprise Integration solves this Problem

1.2 Goals of the work

1. What are challenges of integration?
    a) Heterogeneous Enterprise Architecture Systems
        i. Different Applications
        ii. Different Application Vendors
        iii. Different Application Interfaces
        iv. No Application Interfaces
        v. Legacy Systems
    b) Different (proprietary) data models within and between Enterprises and Organizations
    c) Stability of Integration
        i. Future Changes of EA
        ii. Scalability
        iii. Failure of EA or Integration Components
        iv. ...
    d) Scarce Resources
        i. Integration Development Speed
            A. Necessary Development <=> Reuse of existing Technology
            B. Complexity / Size of Integration
        ii. Maintenance of finished Integration
        iii. Hardware / Software Costs of Integration
            A. Licenses for Software
            B. Scalability of Integration => Necessary Computing Power
2. How does the thesis solve the problems?
    a) Messaging Integration
        i. Loose Coupling
            A. Loose Coupling simplifies adaption to changing EA => simpler Maintenance
            B. Loose Coupling simplifies integration of new EA systems => integration of heterogeneous EA

C. Loose Coupling allows Reuse of "Modules" => faster development

ii. Messaging enables communication with many systems through Adapters

iii. Messaging provides mechanisms for Stability

A. Store-and-Forward

B. Load Balancing

b) Integration Patterns

i. Patterns speed up construction of Integration Architecture

ii. Patterns are proven solutions

iii. Patterns abstract from possible technologies

A. Simplifies understanding of integration concept

B. Allows implementation with different technologies

1.3 Structure of the work

2 Foundation and related work

2.1 Customer Self-Service

1. Definition of CSS
2. What is CSS and why is it important?
3. How to document CSS-Scenarios
4. List of important CSS-Scenarios
    a) Criteria for importance

2.2 Architecture Patterns

1. Definition
2. Patterns relevant for CSS
3. Relevant Architecture bricks and data bricks

2.3 Business Connector

2.4 Integration Patterns

3 My contribution

3.1 Overview and objective

3.2 First part

3.3 Second part

Usw.

4 Experimental evaluation

5 Summary and outlook

Bibliography