Case study concerning architecture development

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The idea

• The main idea – to prepare a case study for building software architectures

• To use a real project for this case study, which demonstrates the reverse engineering of a software architecture

• In each step of the explanation to put a problem and show a solution
A set of real projects

A set of real projects, developed for Deutsche Telekom

One (appropriate?) selected

Carrier Web

Cut

Idealized

What we have at the beginning

• A huge database, unknown type
• Application, written in 70’s in COBOL, only way to access the database
• The database and the application are not available on the side of the developers
• Necessity of modern tools for accessing the business logic of this application
What we must have at the end

- Thin client for access to the system (browser)
- Multilingual:
  - User interface
  - Help system
  - Error messages
- Simulator of the COBOL application for the period of the development

How to realize it?
Problems and Solutions

Problem: Thin client
Solution: Web server

User ➔ Web Browser ➔ HTTP ➔ Web Server ➔ ? ➔ COBOL Application ➔ DB

Problems and Solutions

Problem: Multilingual user interface
Solution: Dynamic web application, using Struts framework

User ➔ Web Server ➔ JSP Engine ➔ Struts ➔ ? ➔ COBOL Application ➔ DB
### Problems and Solutions

**Problem 1:** Access to the COBOL application using Java  
**Solution:** CORBA

![Diagram](image1)

**Problem 2:** Multilingual help system and error messages  
**Solution:** Mappings in local database

![Diagram](image2)
Problem: The COBOL application is not available during the development lifecycle
Solution: Development of own CORBA test server, considering the IDLs, given by
the developers of the original CORBA wrapper.

Problem: Accessing CORBA and database server from web application
Solution: Putting the business logic in an application server

Note: Session Façade is used as a pattern.
The topics, distributed in lections

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• Local DB – Oracle
• Application Server – IBM Web Sphere
• ORB – Orbix/Visibroker
• JSP Engine – Tomcat
• Frameworks – Apache Struts