IBM Conference: Software Engineering for SOA (Service Oriented Architecture) - Service Enabling of a Legacy Environment

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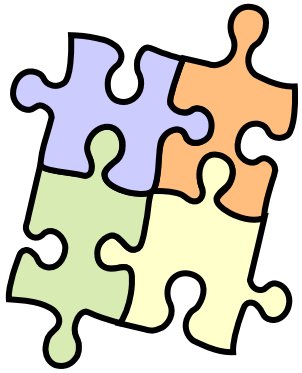
Introduction

- **Development IT** supports the Pharma Development Area

- Areas of focus from an IT perspective:
  - Solution Delivery
  - Customer Service
  - Innovation
  - Quality
  - Processes



The SOA proof of concept
is a bridge between
Solution Delivery,
Innovation and
Business Process streamlining

Introduction

- Who am I ?
  - 2000 - Master of Engineering in Computer Science and Automation Control
  - […]
  - July 2002 – Joined Novartis Pharma AG
    - […]
    - Since July 2005 – Application Architect on Novartis Systems:
      1. Lead Architect
      2. Manages 3rd Level Support
    - Since February 2007 – CH Head of Clinical, Administration & Planning Systems
    - Major accountabilities have been within **Solution Delivery** & establishing bridges with Innovation.

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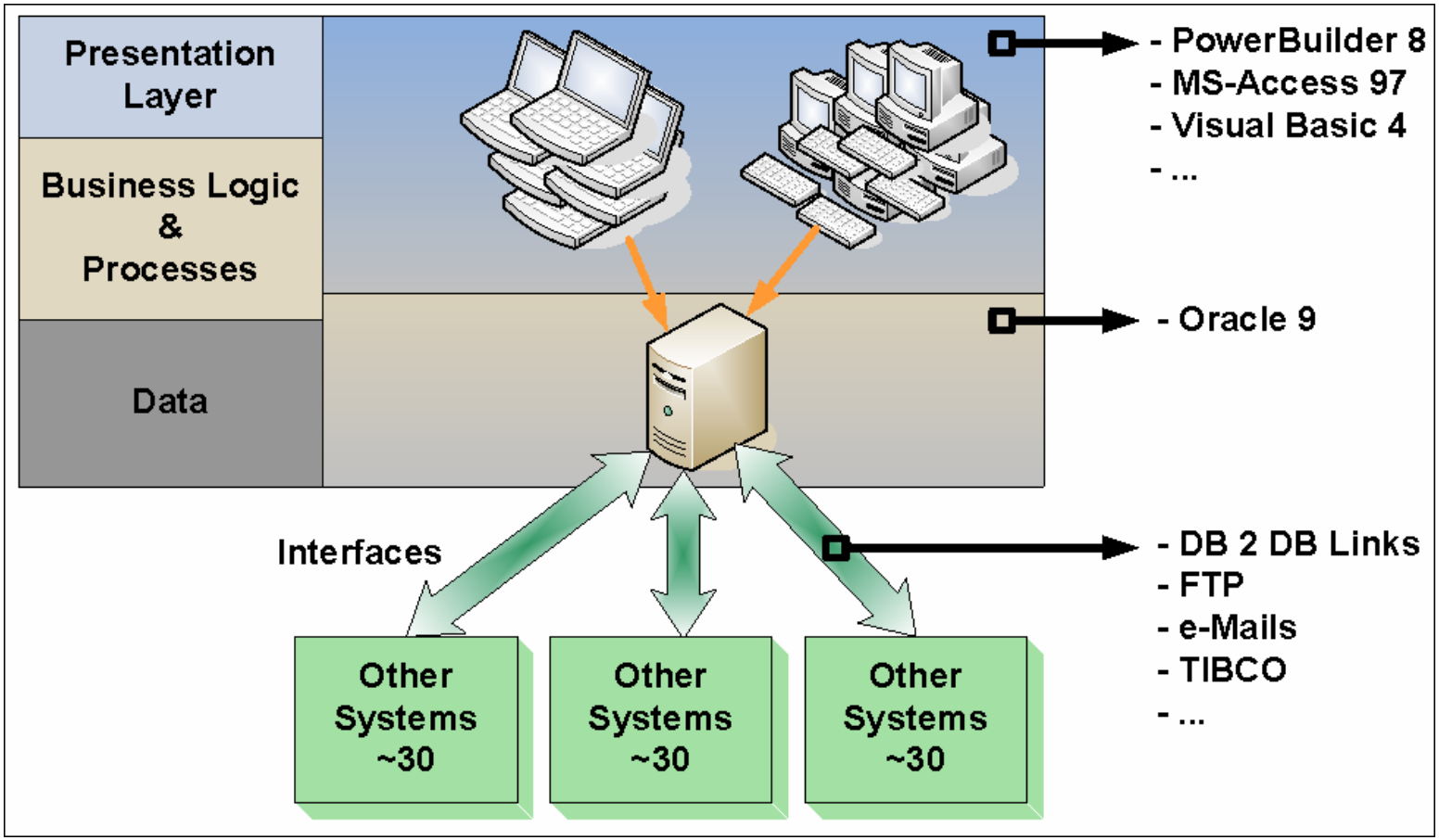
The Challenges

- History
- The Big Picture



The Challenges

- Core functionality:
  - **Not re-usable** from other systems
  - **Cumbersome** to reflect changes in business processes
- Built as silo and interfaces are needed to manage across landscape

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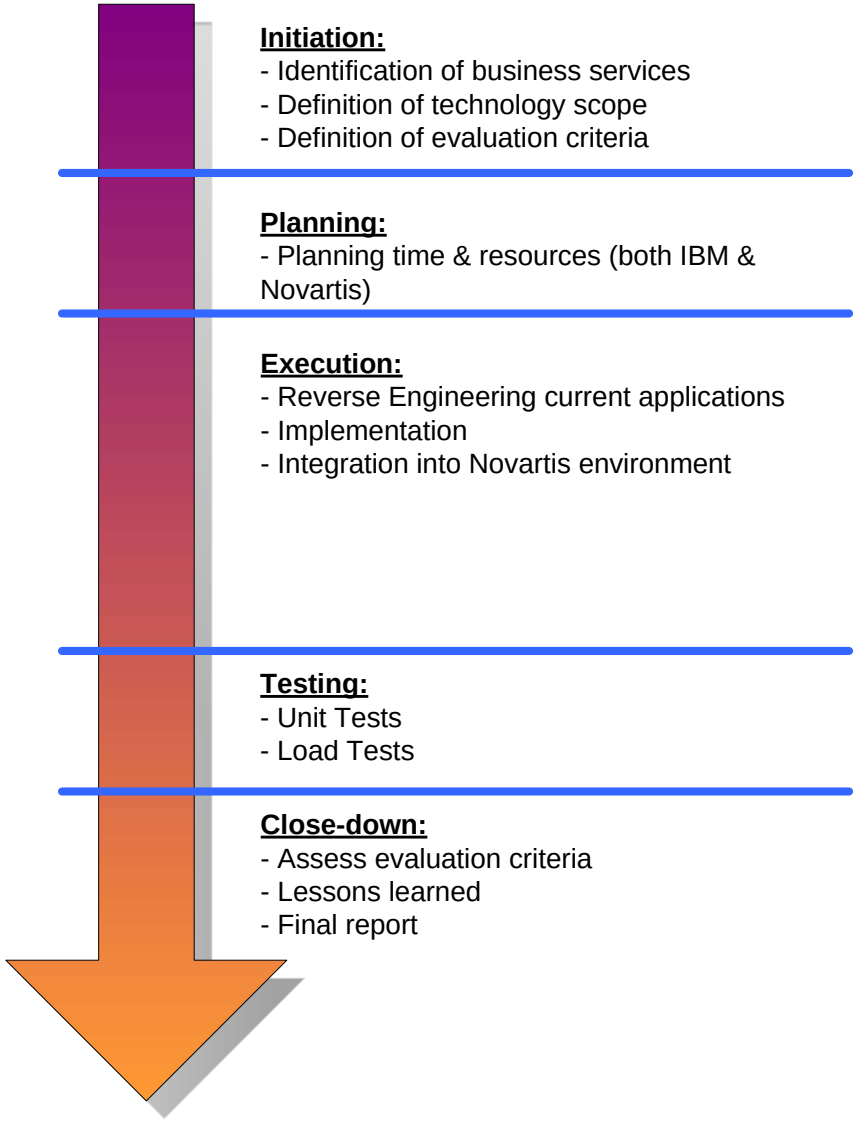
SOA PoC Presentation

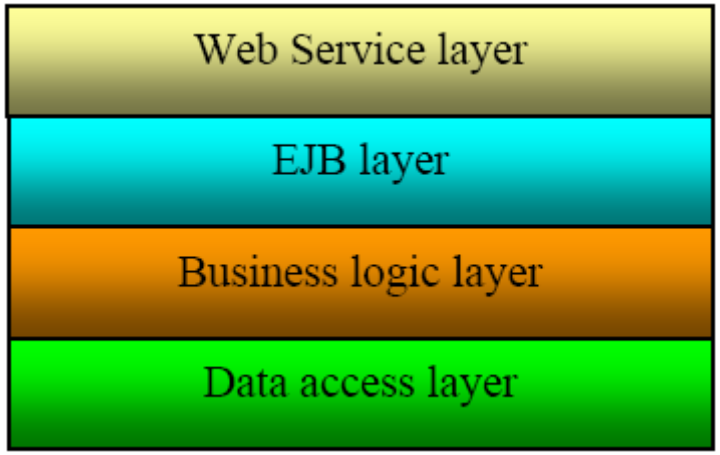
- This PoC is aimed at opening the legacy system to the outside by **following concepts like service enablement**.
- Key business processes have been **identified and re-designed as web-services.**
- The time & money spent in this PoC will help to **forecast** the cost of a potential future complete or partial migration.
- Outcome from this PoC also helped to **shape the technological future** of the system.
- This experience could also serve as input to other systems willing to follow the SOA strategy.

SOA PoC Presentation



SOA PoC Architecture

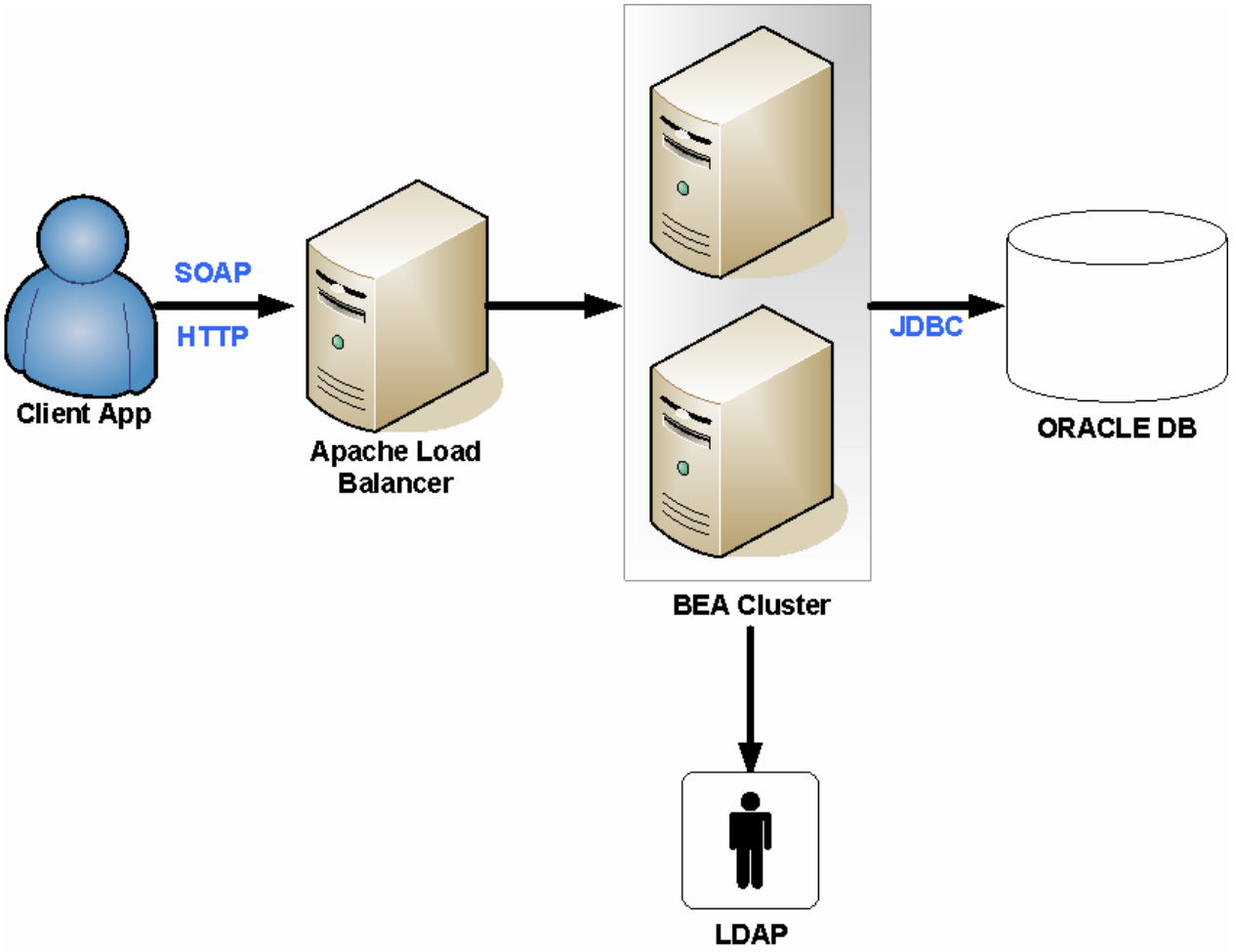
- The architecture is based on layers:



- Different design patterns have been used to reach a high degree of flexibility and maintainability:
  - Factory and Abstract Factory
  - Proxy
  - Façade
  - Data Access Object and Value Object
  - …

SOA PoC Architecture

- Physical architecture:



SOA PoC Outcomes

- The **effort to reverse-engineer** the existing code has been **largely under-estimated**.
- **Security** – successful integration with LDAP (Lightweight Directory Access Protocol) for authentication
- **Interoperability** – BEA & PowerBuilder 10.5 Clients
- **System availability** has been tested and guaranteed. During 6 hours system has been loaded with 100 users / minute and during 6 hours with 50 users / minute without any single failure.
- Load tests – LoadRunner does not support calls to security-enabled web services (information not passed in the header).
- **Cost** of this re-factoring is known and can be used as a basis for projection.

SOA PoC Evaluation Criteria (☆ ☆ ☆ ☆ = best ranking)

- Productivity ☆ ☆ ☆
- Persistence ☆
- Availability ☆ ☆ ☆
- Performance ☆
- Deployment ☆ ☆
- Interoperability ☆ ☆ ☆
- Security ☆ ☆ ☆ ☆

SOA PoC Further domains to investigate

- Migrate to newest versions of BEA WebLogic that support WS-Security, WS-Transaction as well as persistence mechanisms.
- Investigate in Model Driven Development in order to reduce the development time.
- Use standard canonical formats as service argument and return values (derived from common domain model). This is essential if we want to offer the services on the ESB.

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Q&As