Application of Open Source Software in BEKK
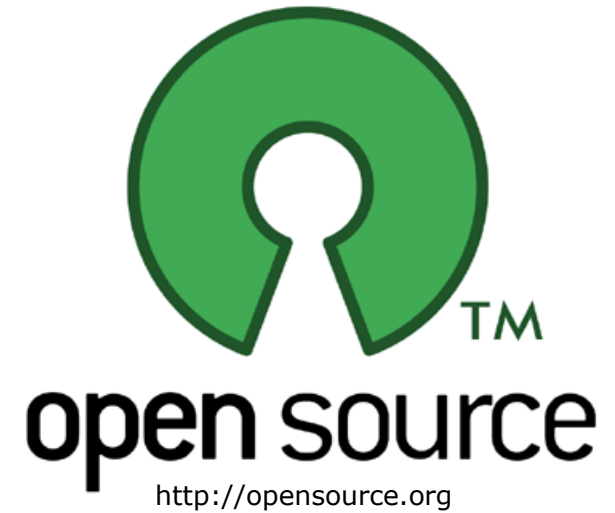
- Eivind Barstad Waaler
- INF5750 - 05.05.2008

BEKK

Today

- Who?

- Why?

- What?

- Examples

- BOSS
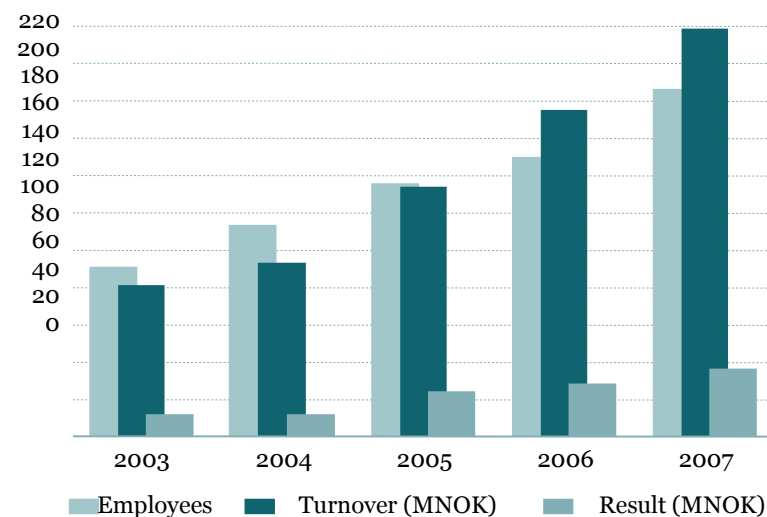

http://opensource.org

Eivind & BEKK

- ## Eivind (31)

  - HiST + UiO

  - BEKK since september 2000

  - Open Source & Development Architecture

- ## BEKK

  - IT-Consultants in Oslo – Vippetangen

  - Projects in Norway and internationally
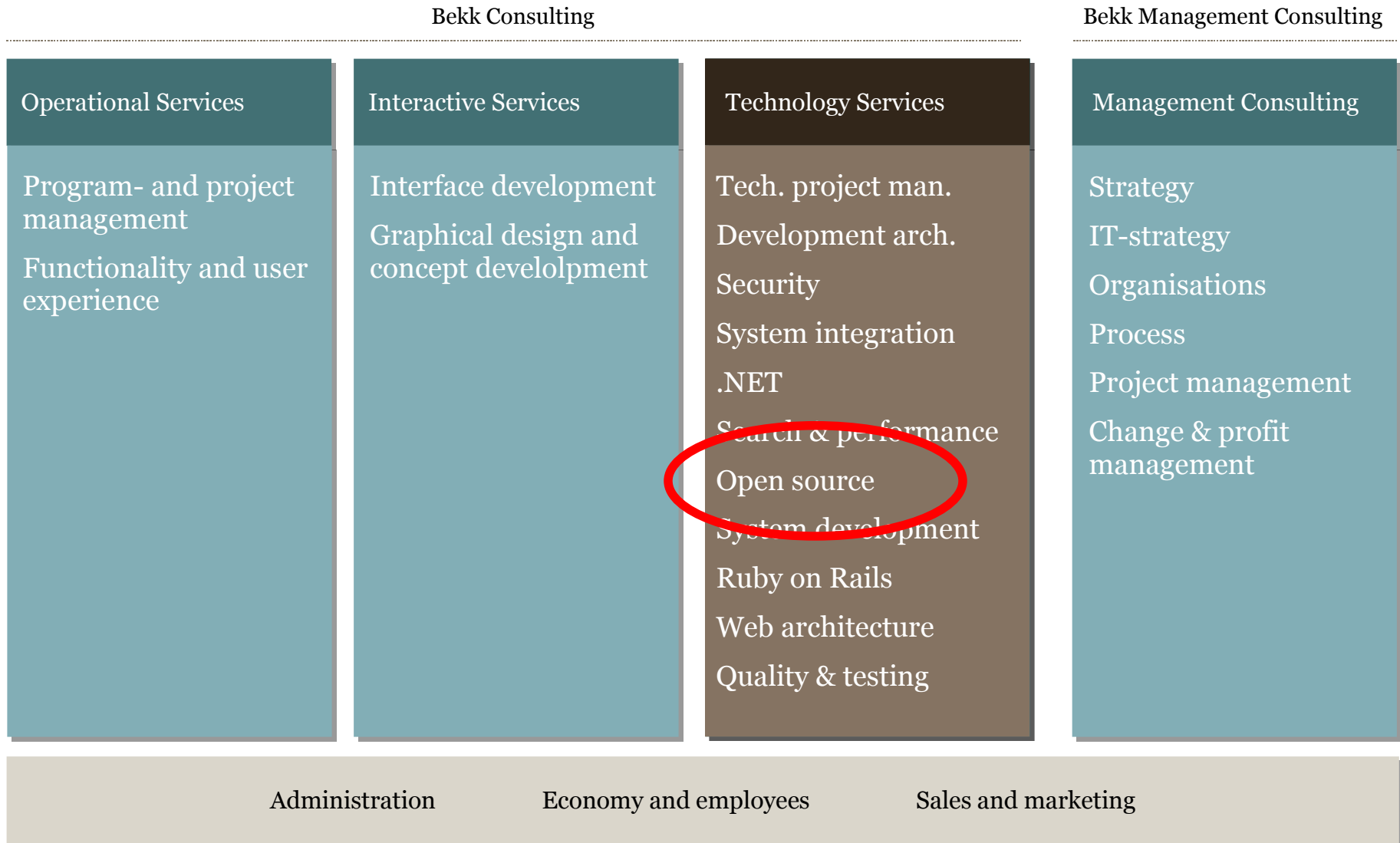
  - ErgoGroup main owner (75%)

Employee statistics

Number of employees	200
Average age	32 år
Women	21 %
Education master level	90 %

Employees/ turnover/ result

Legend: Employees · Turnover (MNOK) · Result (MNOK)
Years: 2003, 2004, 2005, 2006, 2007

Wide compentency; 4 departments, 21 comp units

Bekk Consulting

Bekk Management Consulting

Operational Services	Interactive Services	Technology Services	Management Consulting
Program- and project management	Interface development	Tech. project man.	Strategy
Functionality and user experience	Graphical design and concept develolpment	Development arch.	IT-strategy
		Security	Organisations
		System integration	Process
		.NET	Project management
		Search & performance	Change & profit management
		Open source	
		System development	
		Ruby on Rails	
		Web architecture	
		Quality & testing	

Administration   Economy and employees   Sales and marketing

OSS in BEKK

- **2001**
  - OSS defined as "important" and "possibly useful"
  - XO → Log4J, JUnit, Ant ++
  - Middlegen

- **2002**
  - BOSS – BEKK Open Source Software

- **2004**
  - "Architecture & Open Source"
  - JavaZone – Hibernate + Open Source Agile Architectures

- **2005 – 2008**
  - OSS part of life
  - Driver on ALL projects
  - JavaZone, projects, BOSS, master thesis ++

Why OSS?

- Free

- Open

- Communities

- Survival of the fittest!

- OSS solves real problems…

- Commercial products earn money…

- → OSS often high quality!

What we use

- Frameworks
- Development
- QA
- Products/Platforms
- Only licenses set limits – problem: GPL

Important OSS frameworks

- ## Spring
  - Light-weight/non-invasive
  - Dependency Injection → testing!
  - AOP
  - Plain Java

- ## Hibernate
  - Standard ORM tool
  - Domain model focus!
  - EJB3 driver

- ## Struts2/WebWork
  - Testability
  - Plugin based
  - Extensible
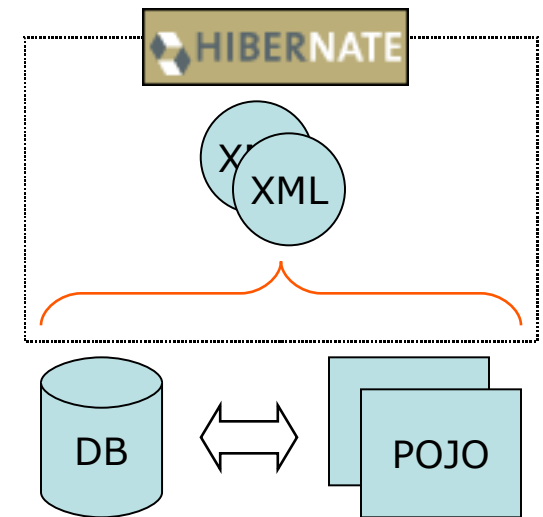
OSS for development

- **Eclipse**
  - High quality IDE!

- **Ant**
  - Standard "make" tool for Java

- **Maven**
  - More advanced "make"
  - Dependency management
  - Reporting

- **CVS/Subversion**
  - Easy to use
  - Standard on many projects
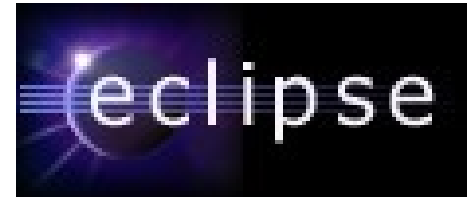
OSS Quality tools

- Testing
  - JUnit/TestNG
  - JCoverage
  - FitNesse
  - Selenium
- Code verification/control
  - Checkstyle
  - PMD
  - FindBugs
- Issuetracking/Wiki
  - Mantis
  - Trac

OSS products/platforms

- ## Linux
  - Common on servers
  - Easy maintainance

- ## JBoss
  - Hight quality Java App server
  - Wide range of tools

- ## Tomcat/Jetty
  - Servlet/JSP ref. implementation
  - Light-weight development
  - Best friends with Spring!

Spring – usage and examples

- De-facto standard in Java enterprise world
- Java Application "glue"
- Examples...
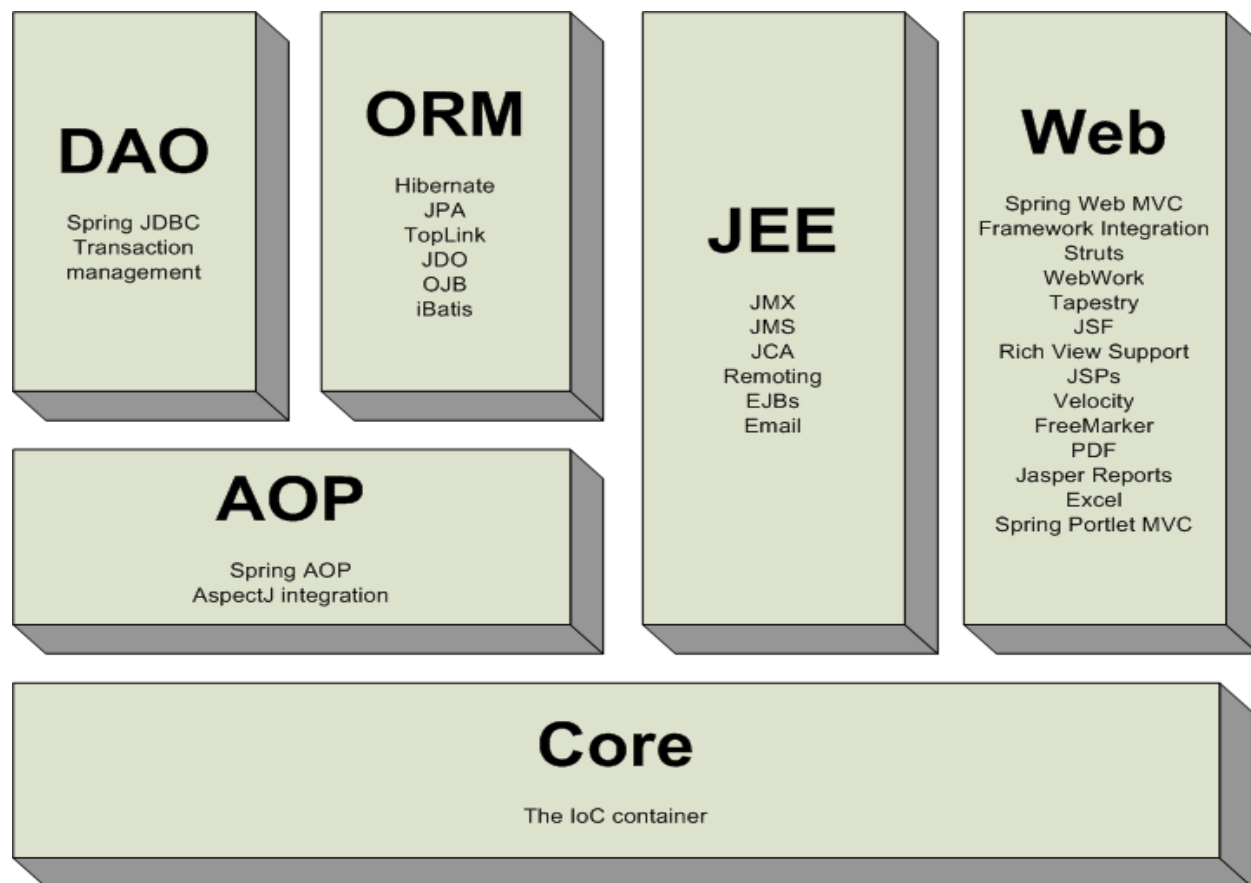
Spring dependency injection

- Focus interfaces/testability

- Good OO practices

- Avoid *new* → DI

- Simpler integration testing

Spring AOP

- Logging

- Transactions

- Caching

- Custom extensions

Spring Web Service

- Write Java – interface + implementation

- Spring configures remote interface

  - Web Service

  - JMS

  - RMI

  - Hessian/Burlap

  - ++

- WSDL, Schema ++ generated!

Spring database

- Direct access
  - Spring JDBCTemplate
- ORM
  - Hibernate
  - EJB3

```
package uiotest;

import org.springframework.jdbc.core.support.JdbcDaoSupport;

public class DAOExample extends JdbcDaoSupport {

  public int getNumberOfPersons() {
    return getJdbcTemplate().queryForInt("select count(*) from persons");
  }
}
```

Spring scheduling

- Create runnable

- Spring integrates scheduler

```java
package no.bekk.boss;

public class SampleRunnable implements Runnable {
    public void run() {
        System.out.println("SampleRunnable running.";
    }
}
```

```xml
<bean id="cron"
        class="org.springframework.scheduling.quartz.CronTriggerBean">
    <!-- Every morning at 6 AM -->
    <property name="cronExpression" value="0 0 6 * * ?"/>
    <property name="runnable" value="sampleRunnable"/>
</bean>
```

Example projects

- Norwegian
  - OSS SOA project

- Forsvaret
  - Pure OSS implementation

- Gjensidige
  - Mixing OSS and commercial products

Norwegian

- JBoss

- Linux

- SOA "done right"!

Norwegian – the airline company

Norwegian – System description

- **A system of many components**

www | Agent | Company | Narvesen | SMS | External clients

Back-office

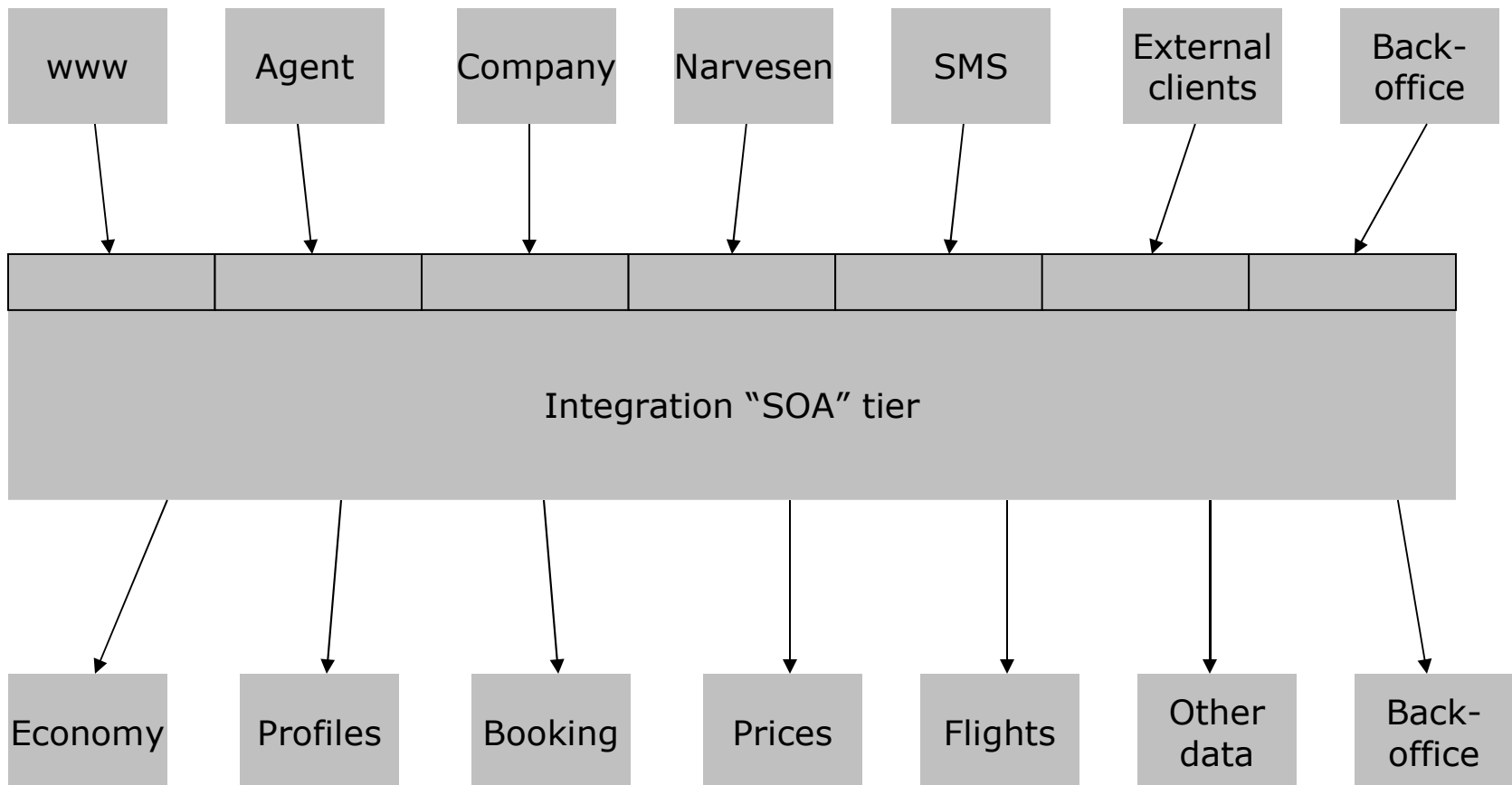Economy | Profiles | Booking | Prices | Flights | Other data
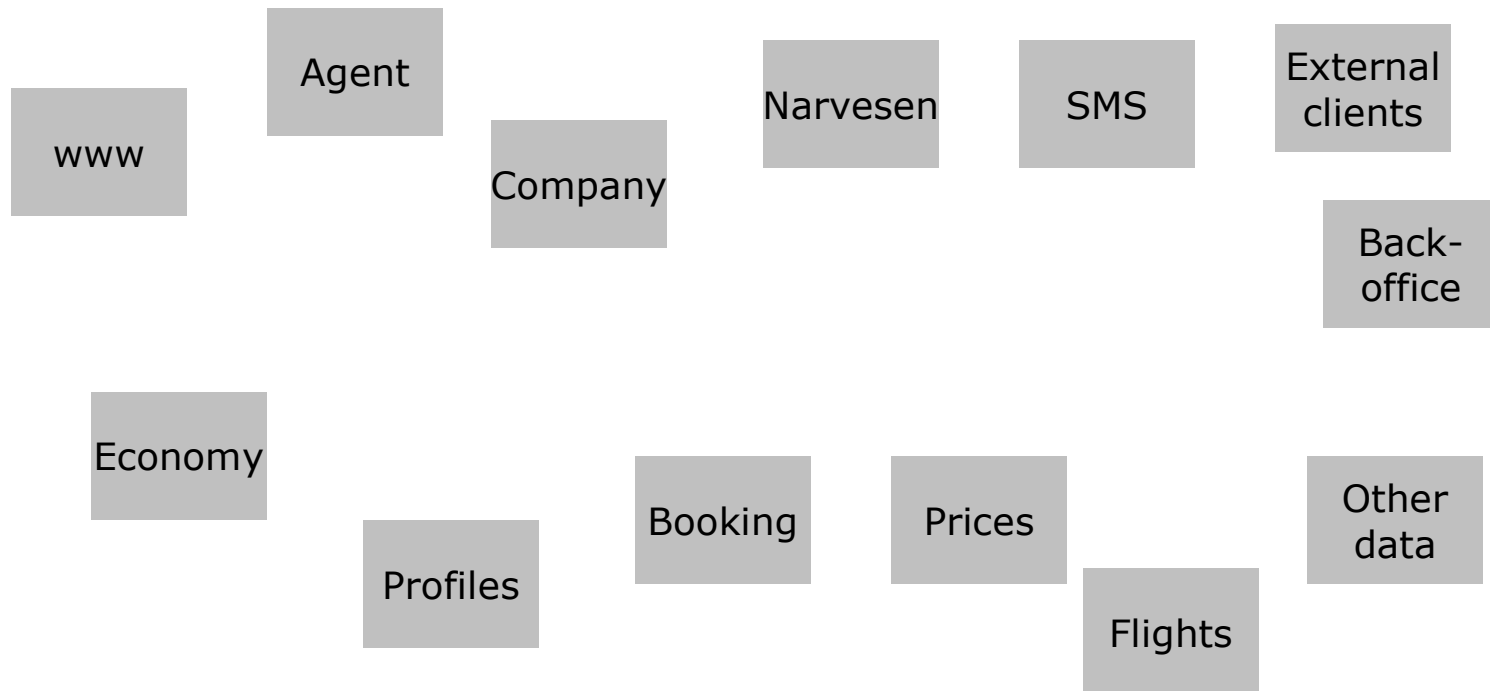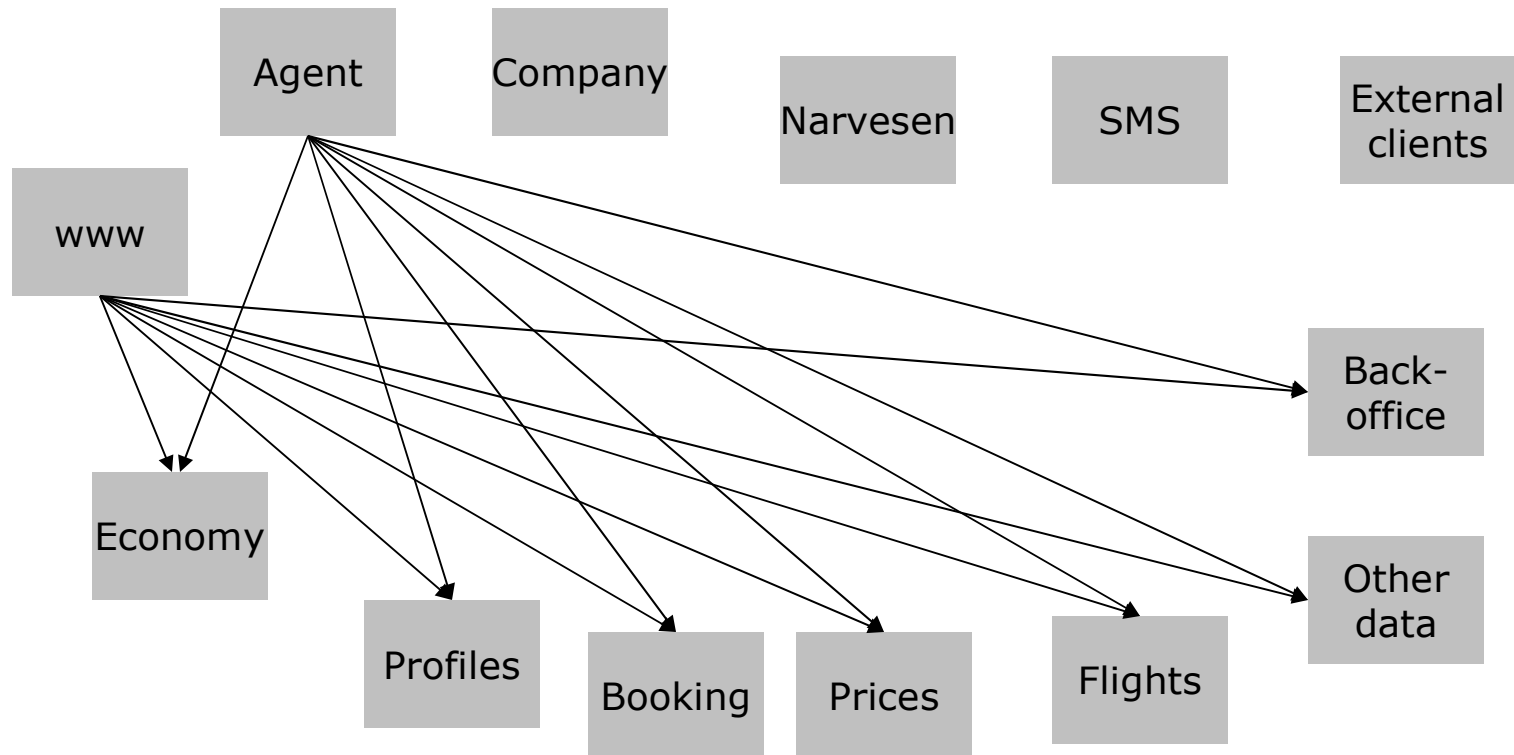
Source: Torstein Gjengedal, Bekk

Norwegian – Technical solution

Source: Torstein Gjengedal, Bekk

Norwegian – Technical solution

www   Agent   Company   Narvesen   SMS   External clients   Back-office

Integration "SOA" tier

Economy   Profiles   Booking   Prices   Flights   Other data   Back-office

Source: Torstein Gjengedal, Bekk

Norwegian – Technical overview

- Clients + services implemented in .NET og Java

- Integration tier – J2EE/JBoss

- Linux servers + development platform

- Interface – WebServices
  - Apache Axis
  - → WS Annotations (JEE 5)

- Service tier – EJB
  - EJB 2.x
  - → EJB 3

- High load
  - 500 000 + requests pr. day
  - Max → ~50 requests pr. second
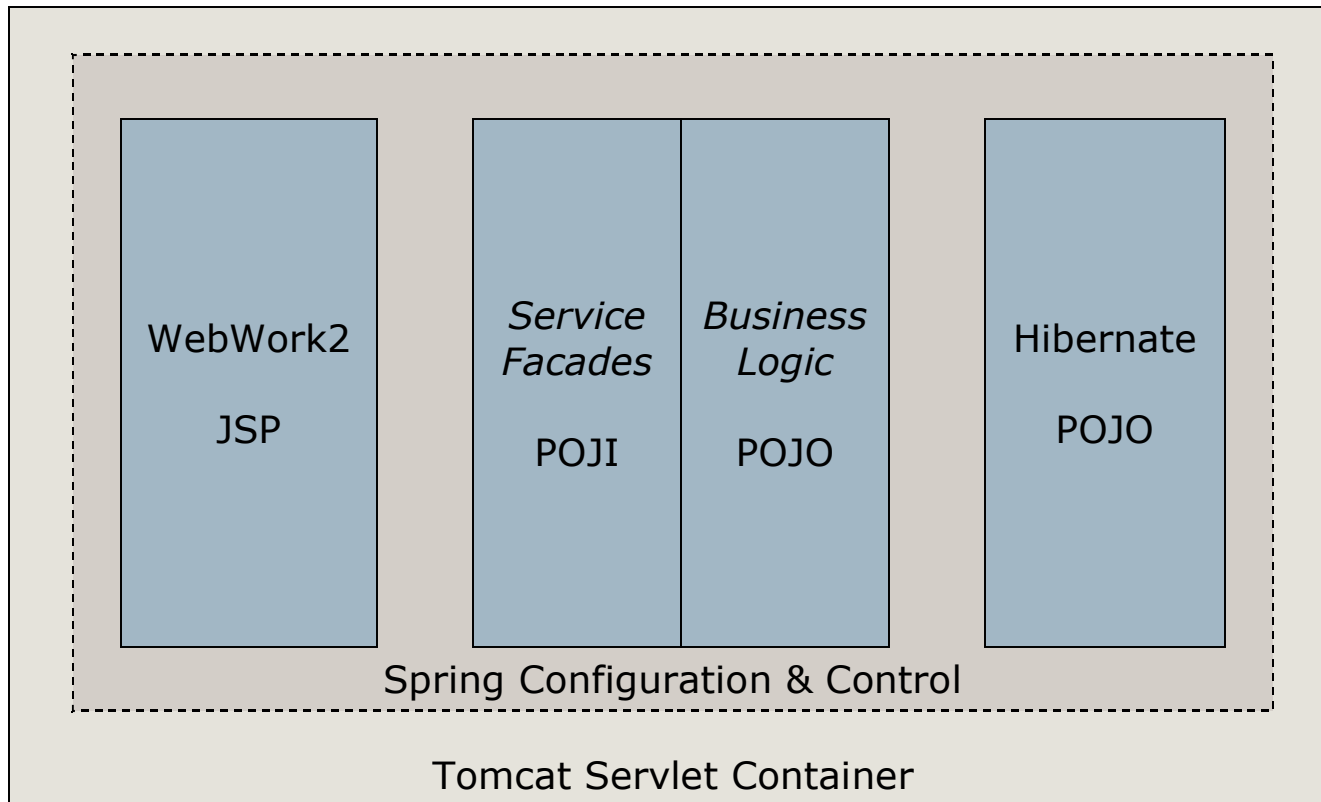
Source: Torstein Gjengedal, Bekk

Forsvaret – Ferdaball

- **Lessons learned database**

- **Test project**

- **Pure OSS implementation**

- **Goals**
  - Save money
  - Time to market
  - Better quality
  - Counter-commercial
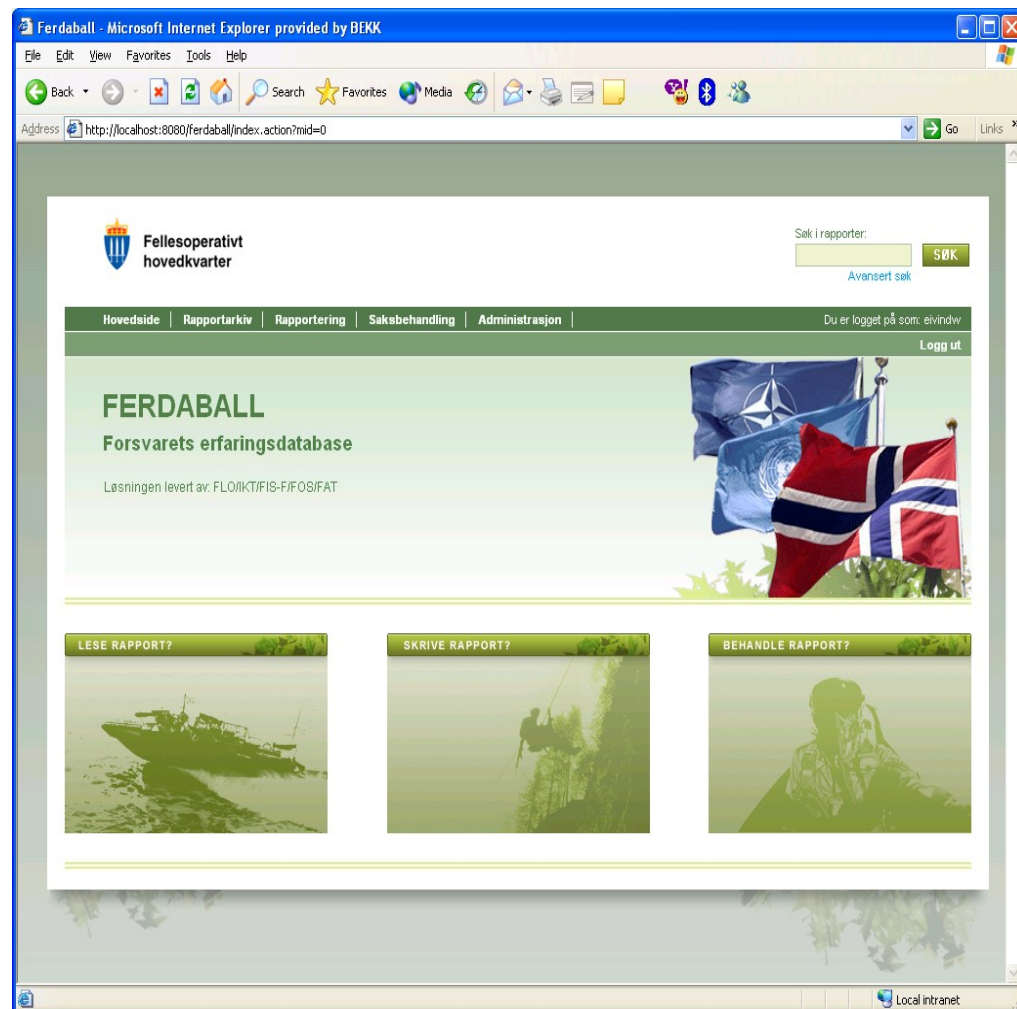
Ferdaball – architecture

- Spring, Hibernate, WebWork

Ferdaball – other OSS used

- SiteMesh

- Axis

- Log4J

- XDoclet/Middlegen

- Lucene

- JMock

- Jakarta Commons

- Velocity

- OpenOffice

- Tomcat (+ JBoss)

- MySQL

- Linux

Gjensidige

- KAP – internal CRM-plugin

- Technology

  - Spring

  - WebWork

  - Displaytag

  - Maven2

  - Subversion

  - JavaScript/AJAX – Prototype/Scriptaculous

  - WebSphere AS

  - TCRM database/backend

BOSS

- http://boss.bekk.no

- OSS contributions from BEKK

- Project examples

  - **CubicTest**

  - NoCommons

  - FunFX

  - **Struts2 Portlet**

  - Maven2 Plugins

- Master thesis possibilities

CubicTest

- TDD for GUI-testing
  - Eclipse
  - Selenium
  - Watir

- Master thesis NTNU
  - 2005 (AutAT), 2006 (3 different)

- Open Source project on BOSS

- OpenQA 2008

- Demo
  - Eclipse with CubicTest perspective
  - Run test from Eclipse
  - Run test from Maven2

Struts2 Portlet Plugin

- Java Portal
  - One page – multiple applications
  - JSR-168 – standard for portlets
- Replace dispatcher with PortletDispatcher
- portlet.xml instead of web.xml
- Run standard application as portlet
- Pros
  - Testability
  - Develop in Jetty/Pluto
  - Portal/Server independence

.NET and the others...

- .NET
  - Open Source big hit!
  - IronRuby & IronPython
  - CC.NET, NAnt, NUnit & NMock
  - Castle, Spring.NET & NHibernate
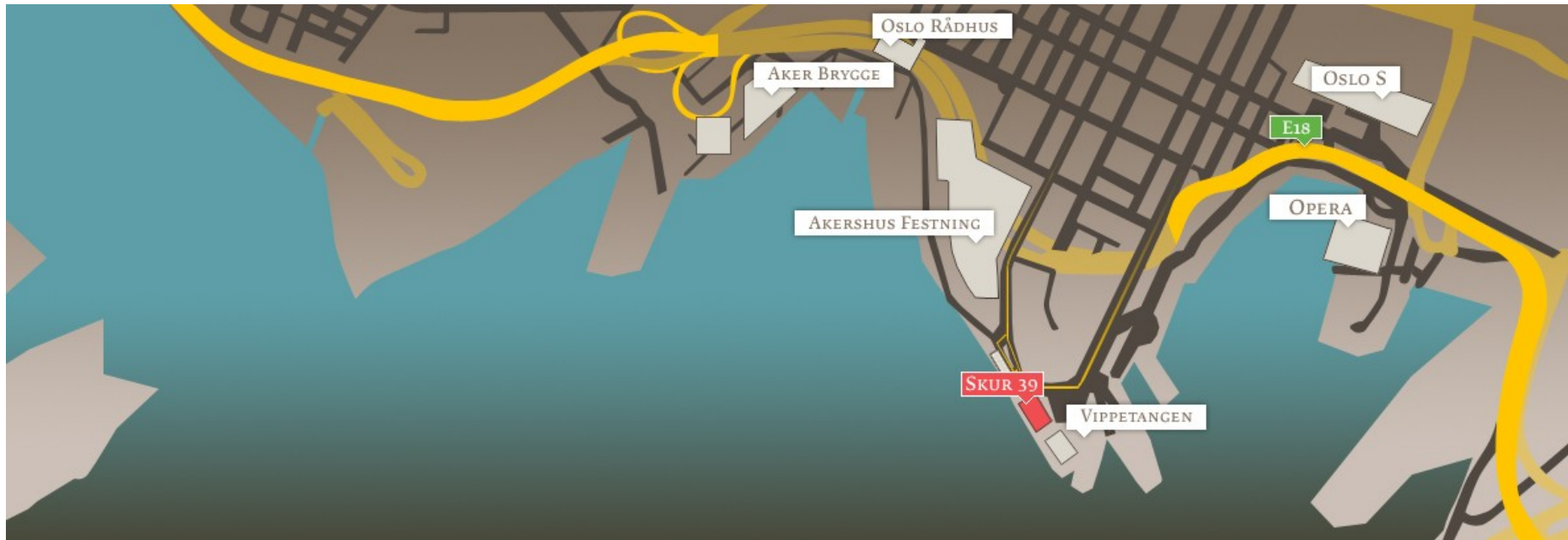 - Mono & Moonlight

- Ruby
  - Growing market!
  - Everything OSS?
  - RoR, RSpec, Watir

- JavaScript
  - Prototype, script.aculo.us, ExtJS

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