



Application of Open Source Software in BEKK

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Today

- Who?
- Why?
- What?
- Examples
- BOSS



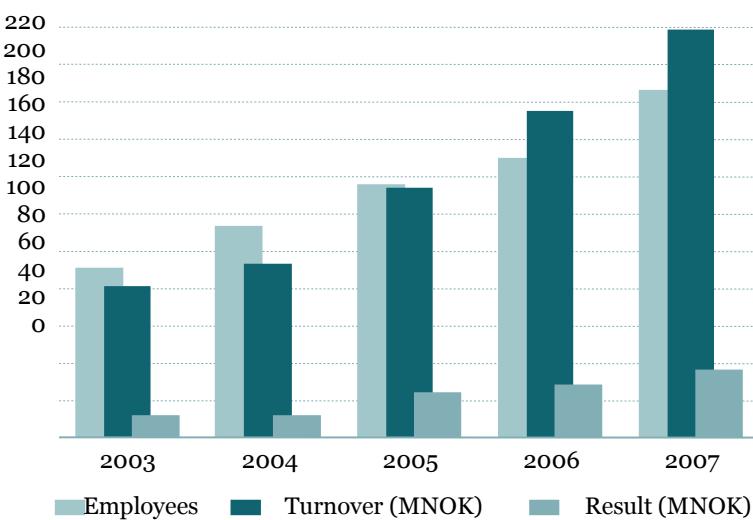
Eivind & BEKK

- 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



Wide competency; 4 departments, 21 comp units

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

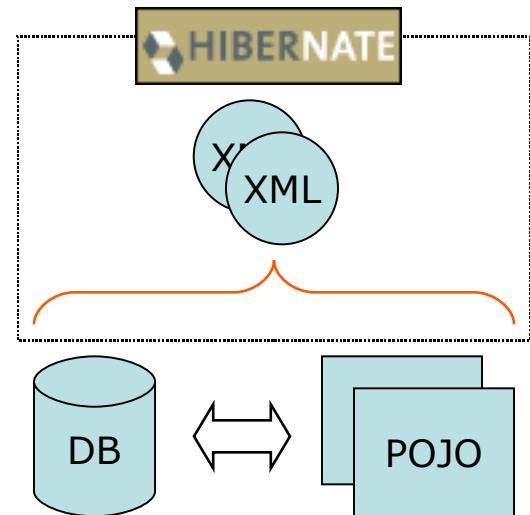


- Hibernate

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

- Struts2/WebWork

- Testability
- Plugin based
- Extensible



Struts²

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 maintenance



- JBoss

- High quality Java App server
 - Wide range of tools



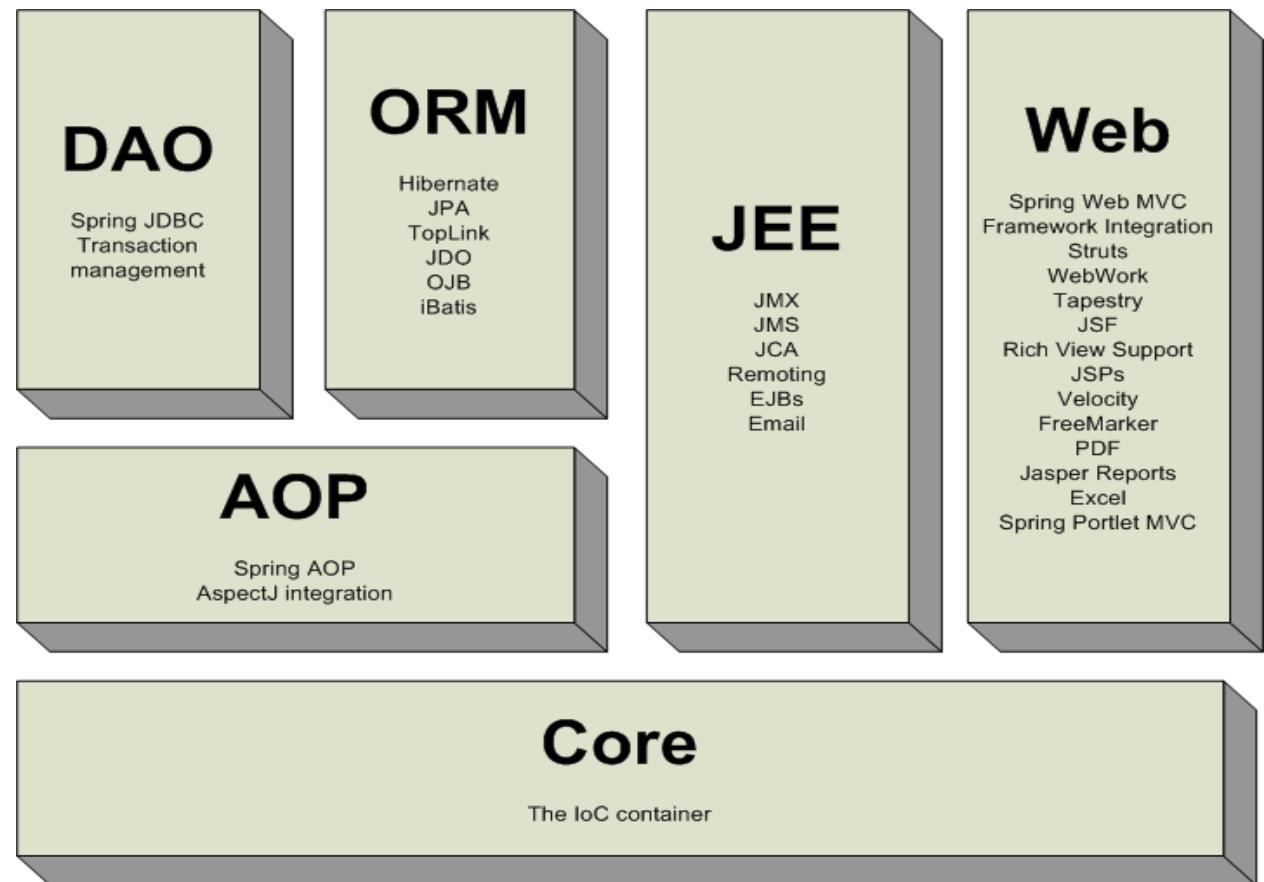
- Tomcat/Jetty

- 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

```
package no.bekk.boss;

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

```
<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

The image displays two side-by-side screenshots of the Norwegian.no website, specifically the flight booking section.

Screenshot 1 (Left): This screenshot shows the homepage with a red background. It features the Norwegian logo, a "Motta gode tilbud?" (Receive good offers?) form with an email input field and a "Meld meg på!" button, and a "Billige flybilletter" (Cheap flight tickets) section listing prices for various routes from Oslo. The routes and prices listed are:

- Oslo - Stockholm **242,-**
- Oslo - København **242,-**
- Oslo - Gdańsk **297,-**
- Oslo - Paris **297,-**
- Oslo - Riga **297,-**
- Oslo - Tallinn **297,-**
- Oslo - Vilnius **297,-**
- Oslo - Dubrovnik **342,-**
- Oslo - Nice **342,-**
- Oslo - Pisa **342,-**

Screenshot 2 (Right): This screenshot shows the "Velg flyvning" (Select flight) page. It has a red header with the Norwegian logo. The search parameters are set to: From Oslo (OSL), To Trondheim (TRD), Date: Friday, October 19, 2006, Type: Round trip, Adults: 1, Children: 0, Infants: 0. The results table shows flight options from Oslo to Trondheim on Friday, October 19, 2006. The table includes columns for departure time, arrival time, duration, fare type (Full fleks or Lavpris), and price. The results are:

Avgang	Ankomst	Reisetid	Fare Type	Lavpris
07:20 Oslo	08:15 Trondheim	0:55	Full fleks	1394 kr
08:05 Oslo	09:00 Trondheim	0:55	Full fleks	368 kr
08:50 Oslo	09:45 Trondheim	0:55	Full fleks	368 kr
10:40 Oslo	11:35 Trondheim	0:55	Full fleks	368 kr
13:15 Oslo	14:10 Trondheim	0:55	Full fleks	557 kr
15:40 Oslo	16:35 Trondheim	0:55	Full fleks	768 kr
16:15 Oslo	17:10 Trondheim	0:55	Full fleks	768 kr
17:45 Oslo	18:40 Trondheim	0:55	Full fleks	1194 kr
18:55 Oslo	19:50 Trondheim	0:55	Full fleks	768 kr
20:00 Oslo	20:55 Trondheim	0:55	Full fleks	768 kr
21:30 Oslo	22:25 Trondheim	0:55	Full fleks	557 kr

Flight Summary:

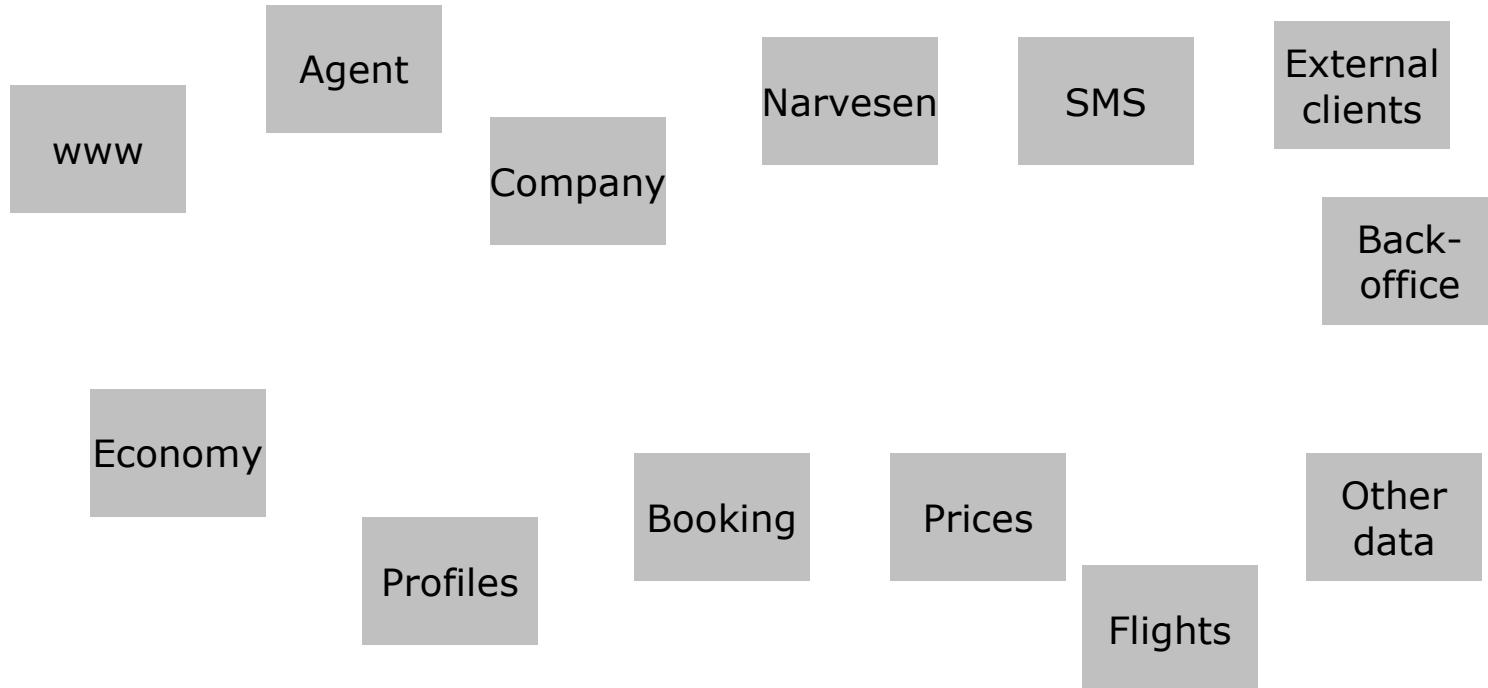
- Utreise:** Oslo - Trondheim, Torsdag 19. okt 2006
- Retur:** Trondheim - Oslo, Torsdag 19. okt 2006 kl. 06:45
- Totalt å betale inkl skatter og avgifter:** 1136 kr
- Other fees:** Myndighetspålagte skatter og avgifter utgjør 236 kr; Internett-gebyr 0 kr

Lavpris betingelser: Reisen kan endres mot gebyr, men ikke avbestilles. Belastes ved reservasjon.

Full flex betingelser: Reisen kan endres og avbestilles.

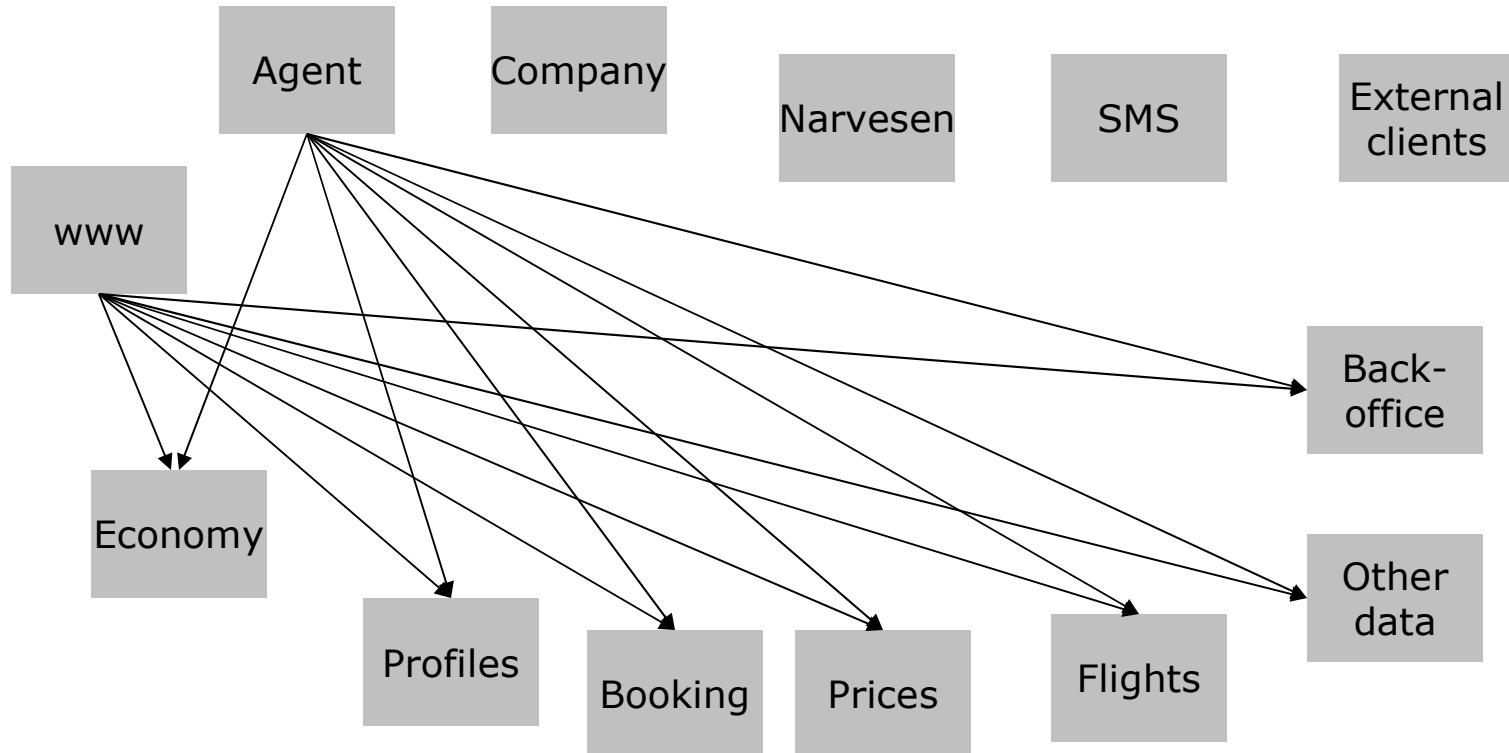
Norwegian – System description

- A system of many components



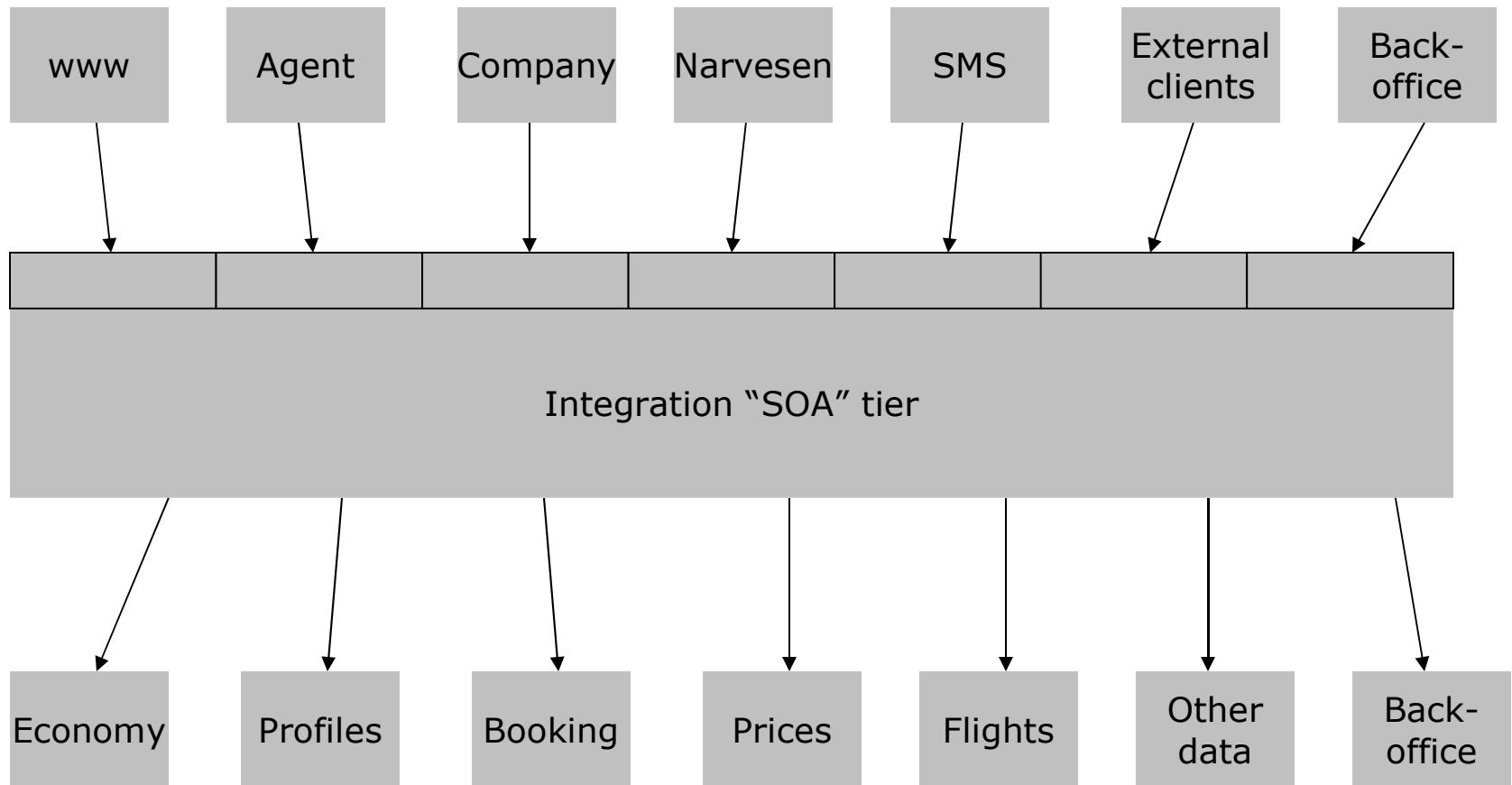
Source: Torstein Gjengedal, BEKK

Norwegian – Technical solution



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Norwegian – Technical solution



Source: Torstein Gjengedal, Bekk

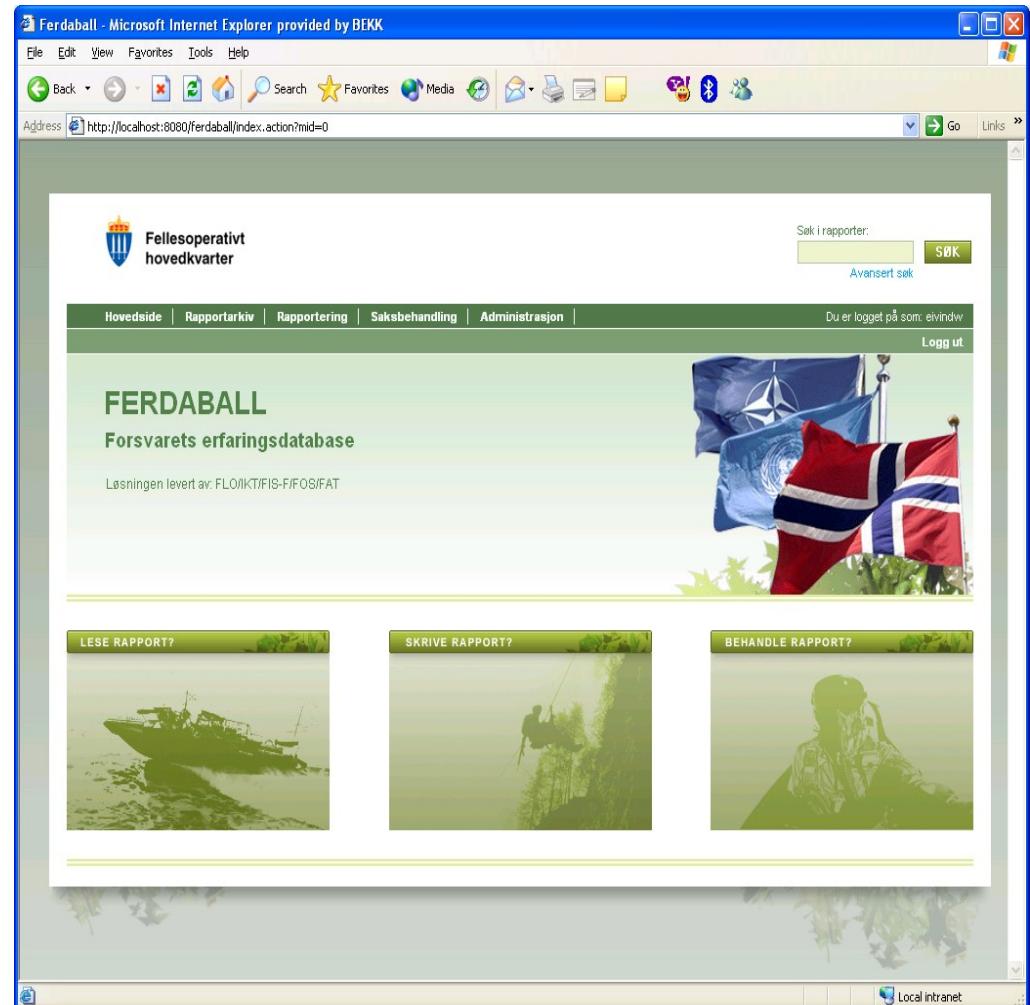
Norwegian – Technical overview

- 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

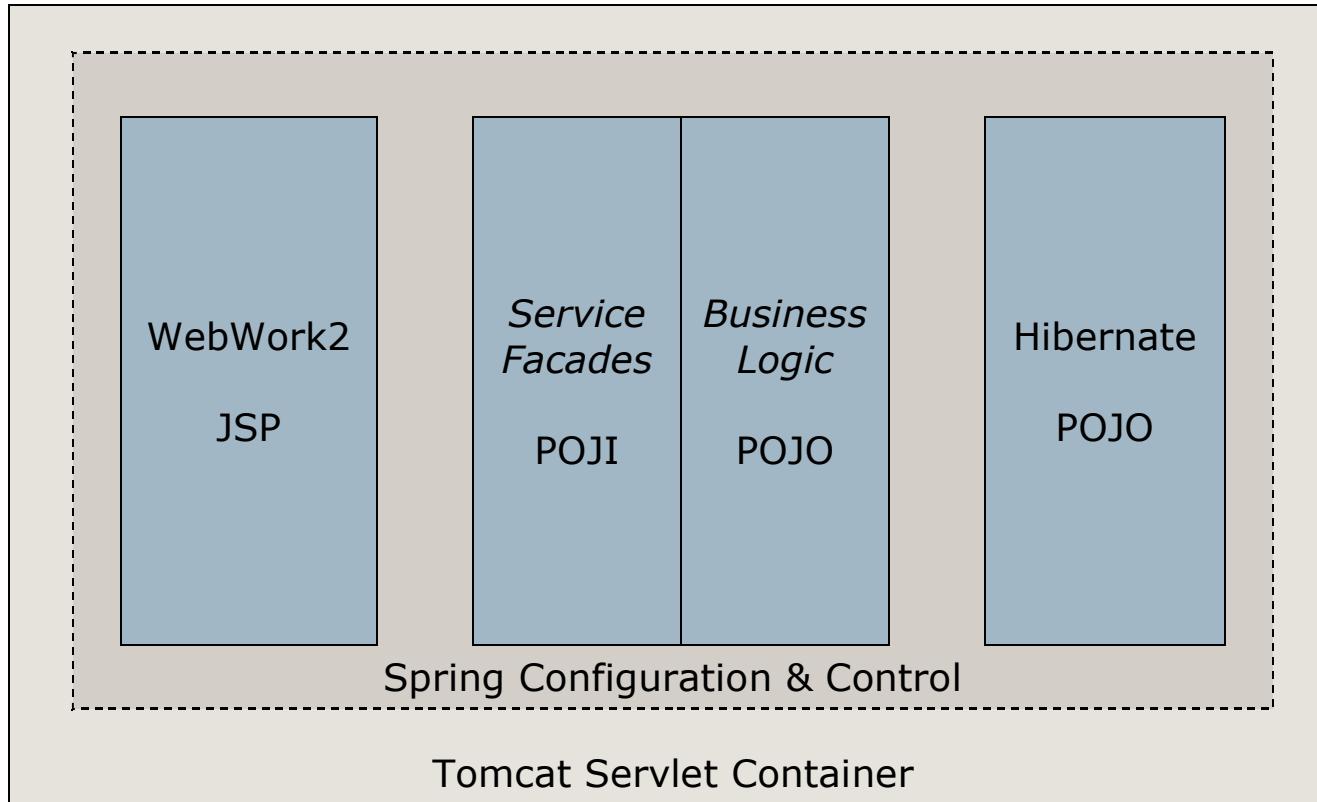
Forsvaret – Ferdaball

- 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

- <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





BEKK

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