Developers guide to server-side productivity

A flight through the landscape of feature sets, technologies and Open Source implementations

Motivation

- Increase productivity and quality of software
- Empower developers to have more fun
- All this achieved by making better decisions

About us

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Agenda

- What challenges are we facing
- A brief look at potential aid
- Case study
- Conclusion
- Q&A

What challenges are we facing

Chalenges

- Myths
- Options
- Processes

There can only be one!

- It is a myth!! - Example: J2EE
  - 1997 - superhot! All vendors(-Microsoft), all hotshots super stoked!
  - 1998 - Pet store. Statefull FUD. Year of EJB benchmarking.
  - 2000 - Hotshots turn against EJB. No silver bullet (again)
  - 2002 - Year of Spring in early adopters markets (Norway)
  - 2005 - Hotshots turn agains Spring and Java web development. Look at RAILS!!
  - 2009 - Hotshots turn agains Rails. Look at Scala and Lift.

There can only be one!

- There are plenty of examples:
  - RDBMS
  - Web applications
  - .Net
  - Windows
  - SOA and Web Services
  - HTTP RPC (REST)
  - [...]

There can be only one!

- Conclusion:
  - There is no silver bullet.
  - Use the brain, Developer!
  - Fun to follow the hype - but it does not create value
  - Different problems require different solutions (like in the rest of the world)

Decisions, decisions, decisions

Soa EJB ORM JPA

JDO JINI

Decisions, decisions, decisions

- Context : f.eks Artikkelbase til publisering.
- Teknologi : f.eks CMS
- Implementasjon f.eks OpenCMS

Decisions, decisions, decisions

- How to make BAD decisions in this chaotic landscape:
  - Psycological aspects
  - Cultural aspects
  - Corporate policies
- Is there a better way?

Psychological aspects

- Fear of making wrong decisions:
  - Sartre: "Med valg følger angst"
  - "Nobody evers been fired for choosing IBM"
  - "You can´t go wrong with beige"

Culture and religion

- Polarization
  - Lightweight vs Suites
  - Linux vs Microsoft
  - Remember: There can be only one!
- A religion war!
  - Easier to get attention when crying out loud.
  - Most effective way to create a revolution.

Company policies

- Thou shal only use Java/J2EE/.NET/LAMP[...]!
  - Reduces the value created from technology (50-90%)
    - Increases the startup and training costs (30-200%)
- You create a VERY big hammer that must be used for ALL tasks: hitting nails and changing lightbowls.

Company policies

- Special considerations regarding training costs.
  - Company policies increase them!
  - Using inadequate tools create solutions that are hard to understand. Training debt!
  - When problems seems hard to solve
    - Stop and think: Am I using the right tools for the job?

Company policies

- Special considerations regarding operations ..
    - Will you let your

Other strategies

- Read the white pages? (CMS matrix)
- Try out demos (CMS eksempelet?)
- Create prototypes?
- Expericence (own or others)?
- Implement more than one solution?
- Go with the flow?

Sigh ....This is hard stuff...

A brief look at potential aid

A counter measure to faith, culture and religion.

- We need some kind of help in order to resist the temptation of religion!

Categorization and exemplifying solutions.

- To make good selections, we need to categorize the problems and contexts
-

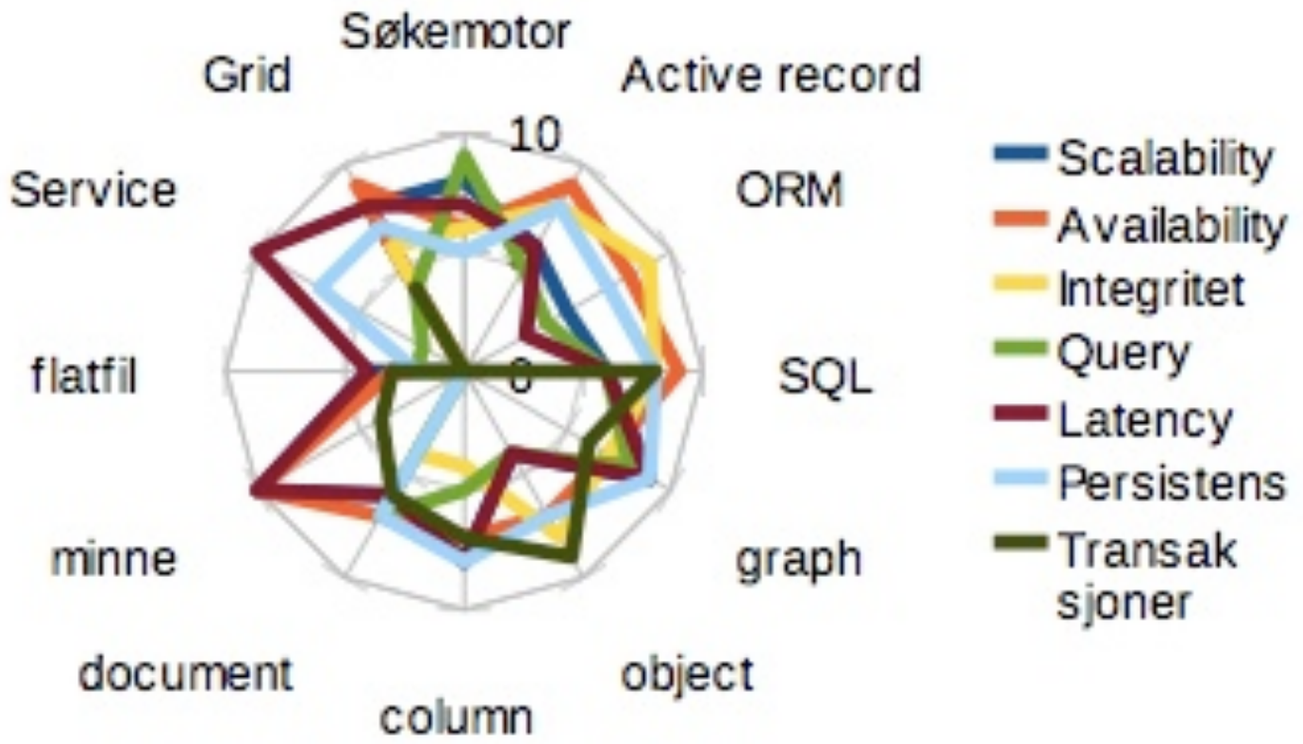
State

- Lets look at which strategies we have regarding handling state in server-side systems

Datastyles

- And what are our options redarding datamodels?

Landscapes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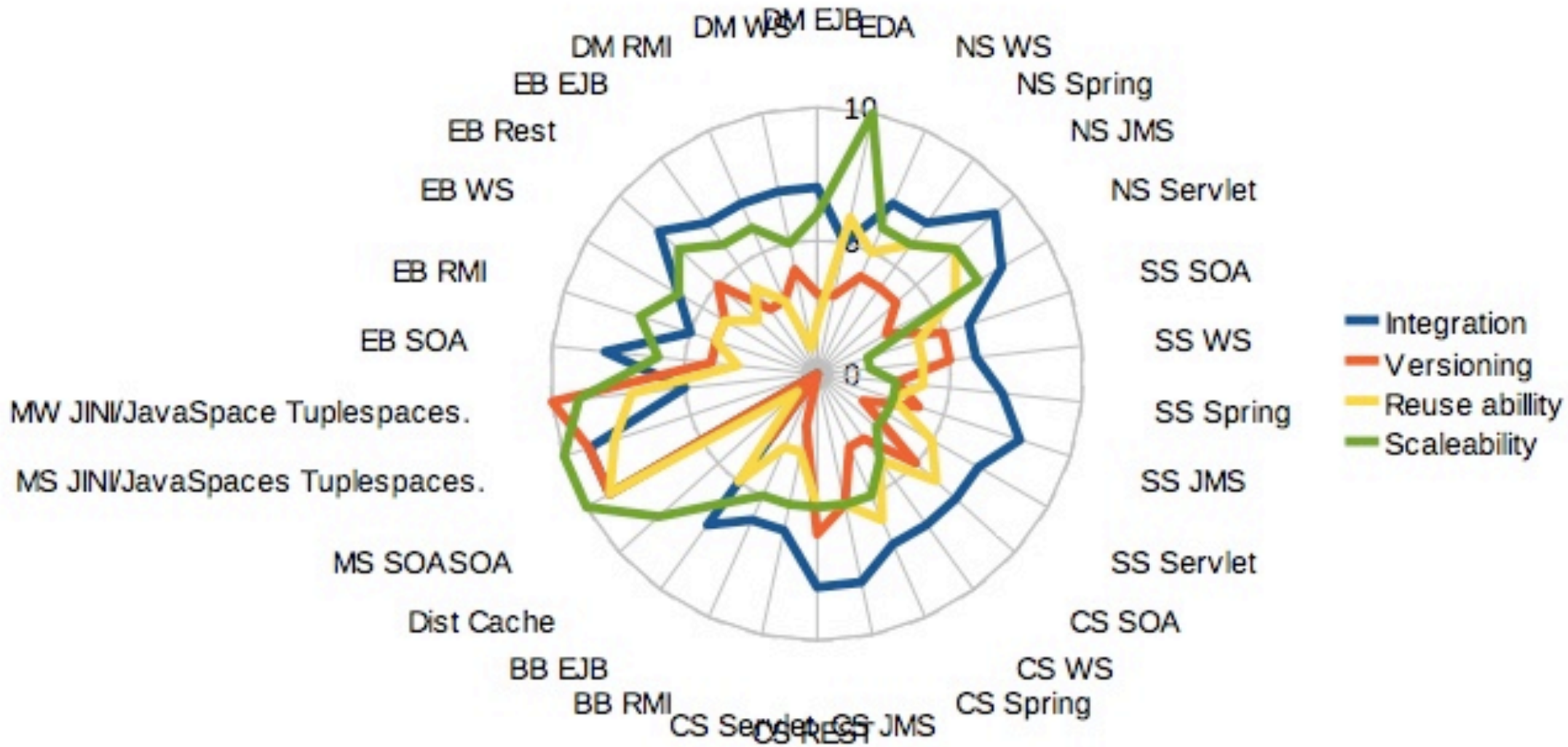
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SS Spring
MS JINI/JavaSpaces Tuplespaces.
SS JMS
MS SOASOA
SS Servlet
Dist Cache
CS SOA
BB EJB
CS WS
BB RMI
CS Spring
CS Servlet
CS JMS
CS REST
10
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Integration
Versioning
Reuse abillity
Scaleability

Case 1

- Web-based customer system for department in large enterprise (10k+ emp.)
- Existing database
- No suitable API´s to integrate with.
- Yet another database driven web application.

Which translates to the following features:

- Database layer
  - No though requirements in Scalability, Availability, Integrity, Query functionality, Latency, Persistence and transactions.
- Service layer
  - No though requirements in Integration, versioning, reusability, scalability.
- We are free to choose **fun** and **productivity**!

Decisions, decisions, descisions

- Context:
  - Java server environment.
  - All developers know Java.
  - Corporate policy: Java, Oracle og JPA.

Let´s make it fun and prductive with Java and open source!

- Standard 3 layers webapp:
  - Frontend: JSF or Struts2
  - Domain logic: Spring framework
  - Persistence: Hibernate ORM to DB
- Nobody got fired from choosing IBM.

No, no, no!

- Stop and think!
- There are much more suitable alternatives
  - much more fun
  - much more productive
  - and still open source and Java

Let´s look at 4 key Java open source alternatives

- Groovy on Grails
- jRuby on Rails
- Scala and Lift
- 4GL / model driven

jRuby on Rails

- Focus on RAD and productivity.
- Simple and productive ORM with Active Record.
- Integrates with Java.
- Built in mvc and scaffolding features.

- Productivity factor: Ten times as productive.
- Fun factor: Five times more fun.

Groovy on grails

- Focus on RAD and productivity
- Easy reuse of existing Java libraries
- ORM through GORM .

- Productivity factor: Six times as productive.
- Fun factor: Five times more fun..

Scala and Lift

- Focus on RAD and productivity.
- Supports active record.
- Good Java integration.
- MVC support

- Productivity factor: Two times as productive.
- Fun factor: Ten times more fun. On top of developers hype curve.

4GL / model driven

- Some kind of generation based on the datamodel.
- >10 open source products available.

- Productivity factor: five to twenty times as productive.
- Fun factor: Developers hate them. below zero.

Time for a decision:

- The winner is....
- jRuby on Rails.
- The best combination for fun and productivity (for this case)
- But all options are suitable alternatives.

What happens next...?

- Great sucess!!
  - 80% of the department is using the app on weekly basis.
  - Rumors of the application spreads like wild fire!
  - Developers and stakeholders are treated as heros.

... now everyone wants the application!

- The landscape changes:
  - A large number of databases and CRM systems.
  - A myriad of customer structures.
  - Off the shelf software
  - 24/7 requirements

Consequences

- Data mastering becomes a huge issue.
  - Not possible to do updates and/or deletes.
- Need some kind of data consolidation.
- Rate of change in requirements skyrocket!
- 24/7 requirements
- Our simple integration strategy is now void.

Which translates to the following features:

- Database layer
  - Though requirements in Scalability, Availability, Integrity, Latency.
- Service layer
  - Though requirements in Integration and Versioning.
- We are no longer free pick and choose freely.

Our context has changed dramaticly!

“Hate to tell, I told you so!” - The hives

- “Our Enterprise Corperate policy would have prevented this!”.
  - Wrong: No application, no problem!
  - Wrong: Poor application, same problem!

“Hate to tell, I told you so!” - The hives

- “We need to re-implement the solution on a platform that supports this new complex scenario!”
    - Wrong: There is nothing wrong with the application!
    - Wrong: The new requirements can be handled on the existing platform.
    - Wrong: The enterprise platform does not solve any problems.

.... and if we need to throw it away, it´s not a huge sunk

Stop and think (again)

- Enterprice company policy did/will not save us.
- Let´s focus on the problems at hand:
- Versoning, Scalability, Latency, Integrations, Availabilty

  What kind of technology can save us?

  None! This is a design challenge!

Landscape revisited.

- We can use the landscape to rate integration strategies for each individual system.
- Keep focus on the problems at hand.

What do we do?

- Frontend: No significant changes.
- Backend:
  - Add some new integration strategies to support the various systems.
  - Correlation of data from different sources
  - Active caching of all external data.

Keep Active record?

- "An object that wraps a row in a database table or view, encapsulates the database access, and adds domain logic on that data.“

- Reduce the responsibility of active records from “domain objects” to an integration strategy for a subset of data sources.
- Add suitable integration strategies for the other datasources.

Architecture v2

- Reduce the responsibility of active records from “domain objects” to an integration strategy for a subset of data sources.
- Introducing domain repository
- Introducing mapers and correlators
- Adding new integration strategies
- re-wire frontend to use repository.

Conclusion