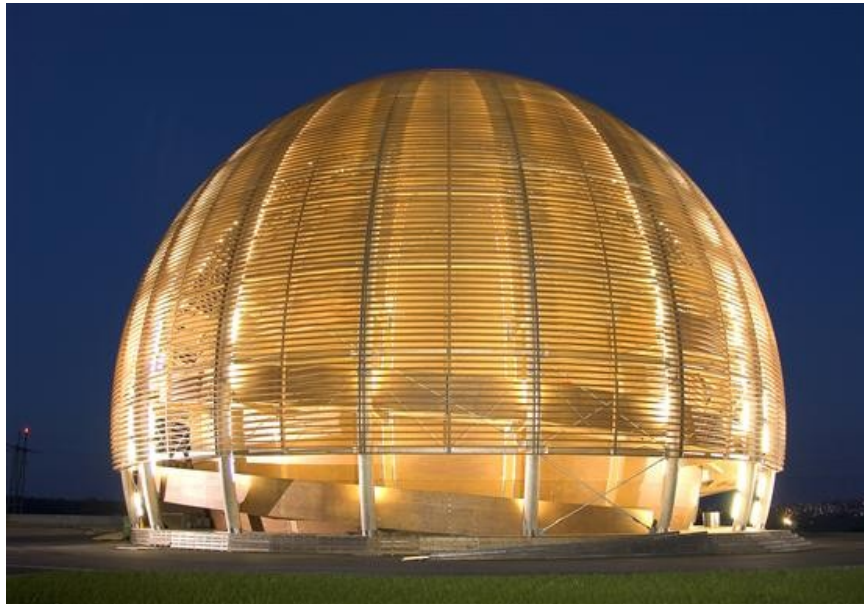


Service Oriented Status Monitoring for DIP Middleware



Brice Copy
ICALEPCS 2009
16 Oct 2009



Plan

- Service Oriented Architecture 101
- SOA for free with Spring
- Rich applications with the Google Web Toolkit
- Case study : The DIP Gateway
- Conclusions

Service Oriented Architecture 101

Principle : Build software for easier testing and interoperability

Platform independent and language independent

Relying on commodity protocols (HTTP, RPC, CORBA, SMTP...)

Simple but software pattern compliant :

Loosely coupled, transactional, composable,
discoverable, stateless, secure, scalable

A good idea all in all

SOA, a good idea

Then the vendors arrived...

Interoperability ? yeah, sort of

Then the confusion settled...

SOA = SOAP right ?

Then the standards bodies arrived...

WS-Federation

WS-Trust, WS-Security, XACML

WS-Discovery, UDDI

WS-MetadataExchange, MTOM

WS-Coordination, WS-CAF...



Those were the days



Bill Gates (circa 1985)

Where were we ?

Back to “Easier testing, better interoperability”

Write code in ideal conditions

One end-user, fully trusted, on a single machine

Add layers until you get the perfect mix of

Functionality

Scalability

Security

Performance

Affordable SOA with the Spring Framework

Spring is an Open Source Java / .NET framework that helps you write simpler and cleaner code

- Write as if each class was in isolation
- Perform unit testing
- Add essential reusable functionality afterwards
- Perform Integration testing
- Deploy where you want (WAR, JNLP, OSGI...)

Remoting

SOA implies remoting, preferably HTTP based

You have done the hard work...

...Spring opens up the door to the web

- SOAP service export, on the fly WSDL
- REST
- DWR (Secure javascript remoting)

With a minimal amount of configuration

Ok, but now we need a face

Gmail [Calendar](#) [Documents](#) [Photos](#) [Groups](#) [Web](#) [more](#) ▼



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Search the Web

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[preview invite](#)

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Livre souple

1 acheté, le 2^{ème}



Ok, but now we need a face

Google Maps

Start address e.g., "SFO" route Max planck
End address e.g., "94526" Route Zeeman @46.235938, 6.03
Get Directions

Search the map Find businesses Get directions

Search Results My Maps

Print Send

Avoid highways Get reverse directions

From: Route Max Planck
01630 Saint-Genis-Pouilly, France
Via Route Zeeman
Route Enrico Fermi

Drive: 2.0 km – about 4 mins

1. Head **north** on **Route Max Planck** 0.2 km
2. Slight **right** toward **Route Zeeman** 0.3 km
3. Turn **right** toward **Route Zeeman** 0.4 km
4. Turn **right** at **Route Zeeman** 0.1 km
5. Turn **left** to stay on **Route Zeeman** 62 m
6. Make a **U-turn** 62 m
7. Turn **right** to stay on **Route Zeeman** 0.1 km
8. Turn **left** toward **Route Enrico Fermi** 0.1 km
9. Turn **left** at **Route Enrico Fermi** 0.3 km
10. Sharp **left** at **Route Arago** 0.3 km

To: Route Arago

km | miles

Add destination ...

These directions are for planning purposes only. You may find that construction projects, traffic, or other events may cause road conditions to differ from the map results.

Map data ©2008 Tele Atlas

Ok, but now we need a face



EN Engineering Department

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Refresh publications				
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└─ dip	NOK	-	-	-
└─└─ RAMSES	NOK	-	-	-
└─└─└─ SRV1	NOK	-	-	-
└─└─└─└─ LHC_B	NOK	-	-	-
PML8531	OK	[["PML8531","2009-10-01 17	Thursday, October 01, 2009	GOOD
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PAXL8502_CabOnly	NOK	-	-	-
PAXL8511_CabOnly	NOK	-	-	-

Ok, but now we need a face

Ever wonder how these applications can perform so well ?

- They are stateless services
- They make your web browser work hard
- Low server load (sockets, CPU time, session weight)

Enter the Google Web Toolkit



The Toolkit in GWT

- Like any toolkit out there (Windows MFC, QT, Gtk+, Java Swing, Eclipse SWT...)
- Widgets (buttons, textboxes, windows...)
- Event based programming (change events, click events ...)
- So far, still the best approach for writing complex desktop applications



Rich applications with the Google Web Toolkit

- Write your application with Java 5+
- Debug, Profile, Test in your favourite IDE
- Hit the "(gwt) COMPILER" button
- And you have a Javascript (and Java-free) web application ready to deploy anywhere, without needing a Java Virtual Machine

Inside GWT

Java Runtime Emulation
Class Library

java.lang.*
java.util.*

GWT
Class Library

DOM
Widgets
Remoting
I18N...

GWT Shell

Jetty Web Server
Firefox / Ms IE
Eclipse SWT

GWT Compiler

Code Generator
Resource Compiler

Case study : DIP Monitoring

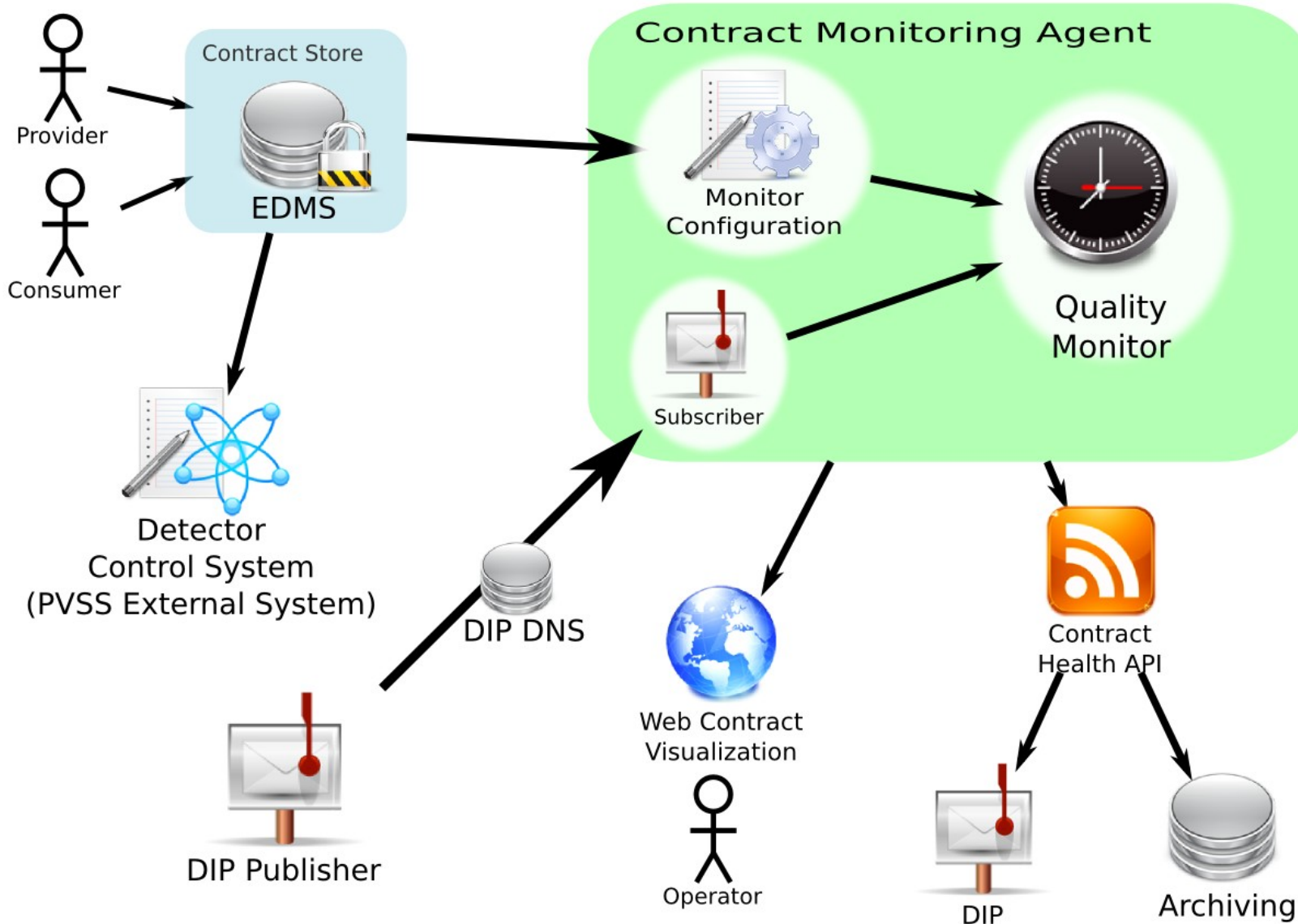


EN Engineering Department

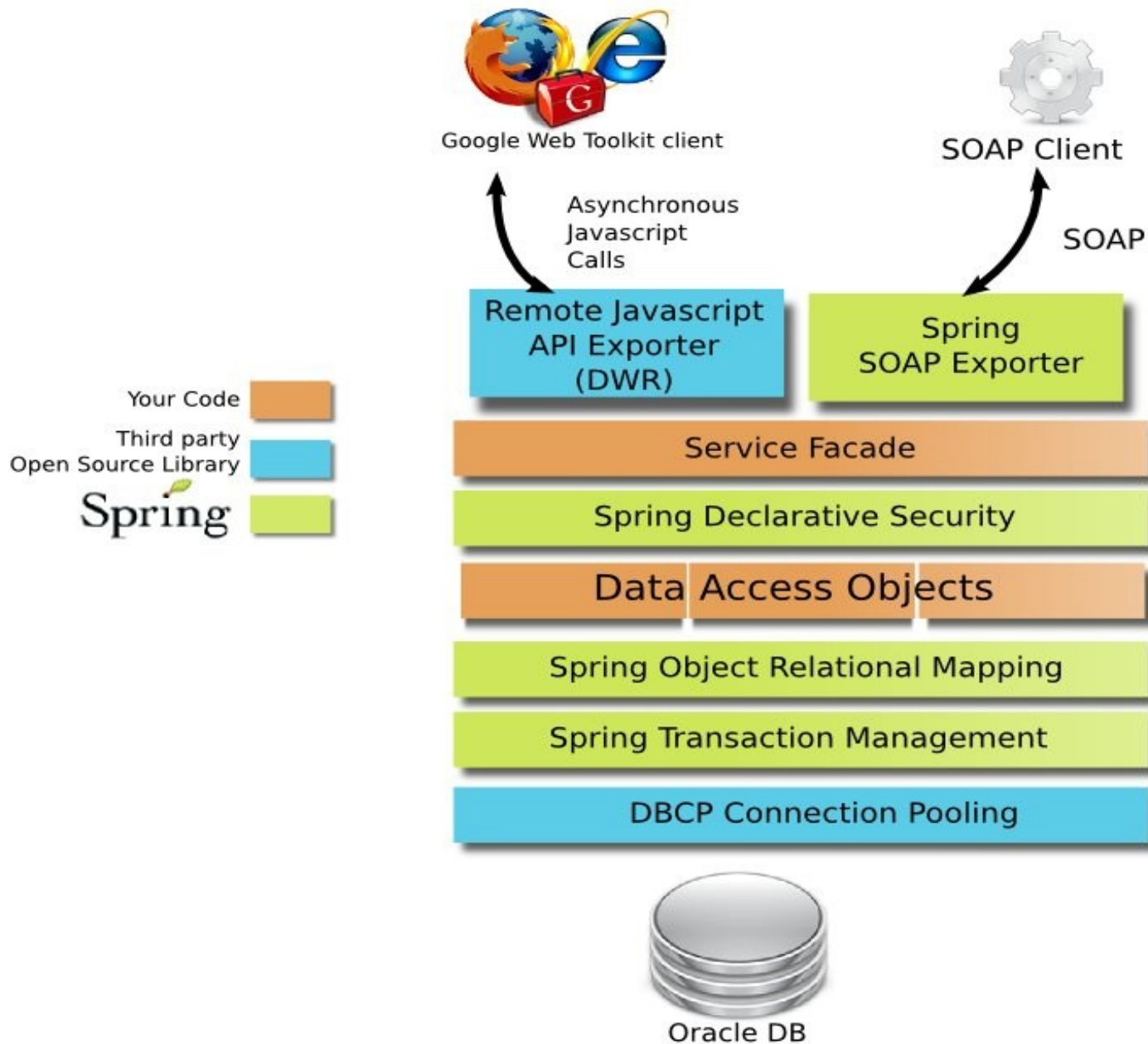
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PAXL8502_CabOnly	NOK	-	-	-
PAXL8511_CabOnly	NOK	-	-	-



Case study : DIP Monitoring



Case study : DIP Monitoring



Conclusions on SOA

- SOA is a worthwhile approach to improve overall design and code quality
- With Spring, SOA is simple
- SOA does not mean vendor lock-in.

Conclusions on GWT

- GWT is a great AJAX solution for Java developers
- Scales well for servers, insulates you from Javascript
- Does not rely on proprietary browser plugins, is 100% open source (Apache License)
- For complex applications, you need adequate tooling like GWT and Eclipse

Links

SOA on Wikipedia

http://en.wikipedia.org/wiki/Service-oriented_architecture

Home of the Google Web Toolkit

<http://code.google.com/webtoolkit>

A feature rich, open-source, pure GWT widget library

<http://www.extjs.com/products/gxt/>

Full details and references in ICALEPCS09
Paper FRA003