

*An O2U / iAdvise Whitepaper*

**Empowering Oracle Forms within a  
Service**

**Oriented Architecture (SOA)**

**The case of ZLM**

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iadvise

## Introduction

In the global marketplace of the twenty-first century where competition is fiercer and the number of competitors higher than ever, businesses need to be agile, flexible, and highly cost-effective in order to be successful. In practice this means you need to constantly innovate, adapt your business to the ever-changing demands of the market, serve a geographically dispersed customer base around the clock, provide them (and yourself) with information that is up to date, and do all of this while cutting costs down to a minimum.

In response to the challenges of this global business environment, information technology is changing its focus from large, monolithic applications to lightweight, modular, and flexible services, which enable quick and agile application development by maximizing component reuse and promoting application integration. The challenge now faced by businesses is to reap the benefits of this new technological trend while avoiding the prohibitive cost of totally redesigning their IT application infrastructures.

This paper will demonstrate how Oracle makes this possible through both offering solutions that implement the latest technological trends, and empowering their existing tools to work with these new technologies. In this way Oracle technology provides a no-pain-all-gain innovation path to its customers, letting them profit from new technology while leveraging and extending the life of their existing IT investments. This approach not only benefits globally operating businesses, but is equally profitable for businesses operating on a local or regional level, as this paper will illustrate by discussing the case of ZLM, a Dutch insurance company.

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## The Customer

ZLM is an insurance company servicing the south-western part (provinces Zeeland and Noord Brabant) of The Netherlands. With 150 employees the company addresses the insurance needs of over 170,000 customers. From a company focused exclusively on agricultural customers and insurances for agricultural machinery, they have gradually transformed their customer base over the last 50 years to nearly 100 percent private individuals, and focused their insurance portfolio on damage claims.

## The Case

ZLM operates a back-office application based on an AS/400 system, which manages the main assets of the company: customers, insurance products, insurance policies, damage claims, etc. Recently, ZLM set up project “NeoZ” with the goal of replacing this AS/400 based system to an Oracle database with a Forms interface. They purchased a component based software solution for insurance companies developed by Aquila, a leading Dutch systems architect specializing in the insurance market. Because this solution is based on a generic package, the new Forms application is now in the process of being customized to the specific business needs of ZLM.

Besides NeoZ, ZLM is also developing a new website which will provide online premium calculations and one of the projected functionalities will be MyZLM, a sub-site where customers can maintain their personal data, perform premium calculations, consult and manage their insurance policies, etc. Because the new website and MyZLM need much of the information and logic stored in NeoZ, the two applications need to be tightly integrated.

In order to calculate car insurance premiums, the original AS/400 system retrieved information from the RDW (Rijksdienst voor het Wegverkeer) government service, which maintains a database of all current and historic information on cars and their license plates (in the Netherlands license plates are permanently associated with a particular car, so it is possible to retrieve information about any car through its license plate number). RDW makes its data available through a web-service, and this

*Enable quick and agile application development by maximizing component reuse and promoting application integration*

functionality needed to be implemented in the new Oracle system as well.

Further analysis revealed that the new website would also benefit from the RDW information, and it soon transpired that there were many more advantages to implementing a more complete SOA system. A number of functionalities were scheduled for immediate development:

- To offer a more complete service to customers, the NeoZ premium calculation functionality could be made available on the new website as well as within MyZLM.
- NeoZ has a built-in postal code validation routine that could be made available to other applications.
- NeoZ could be integrated with Roy-data, a third-party, centrally managed database for car and driver damage histories, which makes its data available for all insurance companies in the Netherlands through web-services.
- The process for handling damage claims, which requires human interaction at certain points (e.g. for the approval of repairs), could be automated and orchestrated via BPEL.

So it became clear that a more complex setup than just connecting NeoZ to the RDW web-service could capitalize on the advantages of a SOA-based system more fully. To implement such a system Aquila called upon the expertise of a more experienced SOA solution provider, which is where O2U came into play.

### **The Solution Provider**

O2U is a Dutch company providing IT solutions based on Oracle Technology. It has recently emerged as a strong player on the Dutch market, being backed by the Belgian Cronos Groep - one of the leading Oracle Advantage Partners in Belgium - via its subsidiary iAdvise. Together, O2U and iAdvise have strong expertise and experience in data integration and SOA solutions, with iAdvise being proud to count among their ranks Nathalie Roman, Oracle Fusion Middleware Regional Director at Oracle Belgium.

*Profit from new technology  
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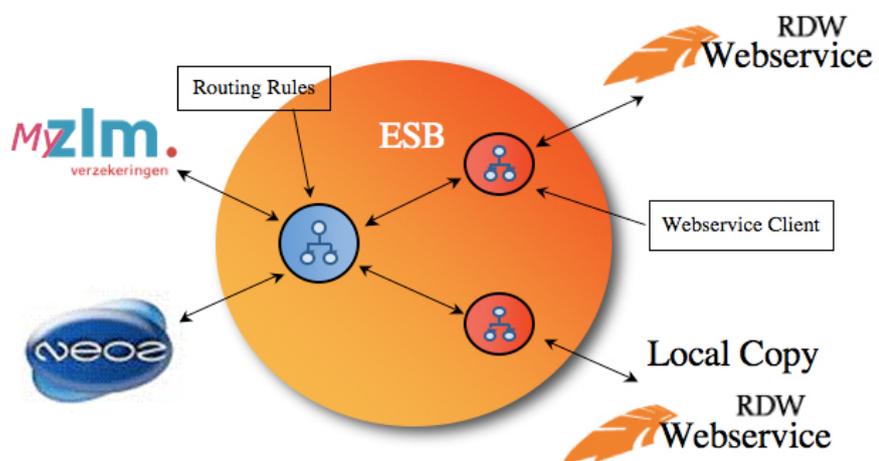
## The Architecture

The first step in the project was to implement the RDW web-service data retrieval functionality in the NeoZ Forms application. But it was of course crucial to come up with an overall architecture plan that could seamlessly and modularly incorporate any future SOA needs and applications (including but not limited to the ones already scheduled for development).

The Oracle SOA Suite was chosen as the basis for the architecture because it provides a complete package that addresses the end-to-end project needs from design and development with JDeveloper, over the high level of security, availability and performance offered by the Oracle database as a repository, to a full set of runtime control capabilities for orchestrating, scheduling and monitoring services as well as for handling the required BPEL orchestration. As an added bonus, the comprehensiveness of the Oracle SOA Suite package avoids the need to resort to a mix of tools and systems from various vendors with all the associated problems of compatibility, interoperability, continuity and maintenance of such a heterogeneous setup.

## The Solution

The overall setup for the implementation of the RDW web-service data retrieval functionality looks like this:



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Both NeoZ and MyZLM communicate with a central Enterprise Service Bus (ESB) that contains the actual web-service clients as well as a set of rules to route the information from services to consuming applications. Because of the pay-per-call regime of the RDW web-service, each time data is retrieved from the RDW web-service, a copy of the data is cached in a local database. If another request for the same data is made within a certain timeframe, the data will be retrieved from the local copy instead of the RDW service, significantly reducing financial costs, avoiding WAN band-width waste and improving application response time. The local cache database also makes its data available via a web-service, and the routing rules within the ESB make sure the data is retrieved from the appropriate service, so that the actual source of the data becomes transparent to the requesting application. The communication between the requesting applications and the ESB also runs via a web-service made available by the ESB, which provides an abstraction layer between the applications and the actual external web-service.

The ESB thus effectively decouples the data consumer from the data provider, and the connection to each provider as well as the routing rule logic only need to be defined once in the ESB. Any other applications that might need RDW information in the future can therefore simply call the web-service provided by the ESB and use the data, without having to worry about how and where to retrieve it from the outside world.

With the web-service interface defined in the ESB, the only thing left is to enable the NeoZ Forms application to communicate with it. With Oracle Forms this involves just five easy steps, which hardly require any coding and can all be completed from within JDeveloper:

1. Run through a wizard that automatically creates a Java class that can communicate with the web-service.
2. Make this Java class available on the system where the Forms engine runs.
3. Tell the Forms engine where it can find the Java class.
4. Import the Java class into Forms Builder.
5. Create a trigger action in the appropriate Form that uses the imported Java class.

All of these steps are accomplished with just a few clicks of the mouse. The only real coding required is in the last step where you invoke the

web-service and process the result, because what you do with the retrieved information depends of course on the specifics of your application<sup>1</sup>.

The other scheduled SOA developments besides the RDW interface listed above will not be discussed in detail here, but they all rely on the same basic principles of the SOA architecture:

- Build a web-service client in the ESB that retrieves information from a web-service provider (internal or external)
- Make the information available to consumers via an ESB-provided web-service
- Configure the consuming applications to use the data provided by the ESB service

In this way, by the addition of each new development, the ZLM IT infrastructure is gradually extended with new functionality, steadily increasing the synergy among local applications and with external providers. And because of the abstraction layer provided by the ESB intermediary, changes on either end of the information supply-chain become transparent to the other end. Whenever a web-service provider changes the structure of the data it supplies, only the ESB web-service client needs to be adapted to reflect these changes. All of the applications consuming the information remain unaffected and can continue to function normally.

*Once the basic infrastructure of the ESB is in place, applications and services that use it can be developed or adapted on an as-needed basis, ensuring that investment money is spent exactly where it is needed and when it is needed.*

### **The Benefits**

By introducing a SOA framework into its IT infrastructure, ZLM will be able to extend the functionality of its existing applications with twenty-first century technology, enabling the company to protect its past investments while at the same time tapping into the new technologies that make up and define the present-day complex marketplace. Through SOA they can benefit from up-to-date information, interface their own systems with those of strategic external partners, and strengthen their

*The ESB effectively decou-*

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<sup>1</sup> A full technical explanation on how web-services can be integrated into Oracle Forms can be found on the Oracle website at

<http://www.oracle.com/technology/products/forms/pdf/10gR2/forms-soa-wp.pdf>

position in the marketplace by connecting to acquired and potential customers through the internet.

And they can do all of this in a gradual and fully modular fashion. Because once the basic infrastructure of the ESB is in place, applications and services that use it can be developed or adapted on an as-needed basis, ensuring that investment money is spent exactly where it is needed and when it is needed. Because of this modular architecture, a SOA-enabled business can maintain a constant and gradual pace of innovation, keeping in step with the evolution of the market. For ZLM this means being able to quickly profit from services provided by external partners such as RDW or Roy-data when they become available, or finding new uses for functionality provided by existing local systems through making them available to other applications via a web-service interface.

And by relying on Oracle technology, they have ensured that their investments are backed by a single strong vendor who provides an end-to-end solution with guaranteed continuity and solid support for all of the system's components, which greatly simplifies maintenance and administration.

## **Conclusion**

By discussing the case of ZLM, we have illustrated how SOA-based solutions maximize return on investment, by allowing businesses to maintain a gradual but steady pace of innovation through spreading their IT investments over time, and by extending the service-life of existing applications through reusing the functionalities they provide for other applications.

We have also seen how Oracle supports this new technological trend through its comprehensive SOA suite, and through ensuring that existing technologies such as Oracle Forms are kept up to speed with technological evolution by allowing them to integrate easily and seamlessly in a service oriented architecture.

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