Structuring CAMA (Context Area Mobile Applications) in SOA (Service Oriented Architecture) and MDA (Modern Driven Architecture)

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Abstract. Model Driven Architecture (MDA), as we consider the growing significance and utility of modeling in the development of software and solutions, it reflects the benefits of MDA to transform one PIM into several PSMs, each for platform or technology in which the final system will be deployed, and the automatic code generation that implements the system for those platforms from the corresponding PSMs. Service-oriented architectures (SOA) are also presented as the key to business agility, especially when combined with a model-driven approach. Model-Driven Architecture (MDA) is a well-developed idea that fits well with SOA, but as of today, it has been a specialized technique that is beyond practical application scope of most enterprises. Our view is that MDA aims at giving detailed framework for software production. The framework given, a unified modeling architecture, which illustrates how the two architectures can be brought together into one, was presented in this study.

Keywords: Model-Driven Architecture (MDA), Context Aware Mobile Applications Domain Model, Service-oriented architectures (SOA), Software Process Improvement, Component Based Development,

1 Introduction

Developing and designing a system requires a lot of effort, but the object-oriented and component-based technology has not met the needs of these systems yet, and may be considered adding some new ideas that need simplification. To gain benefit of such technology, an approach to modeling and designing these complex distributed systems is required. As of now, there is no SOA-based development that that fits this approach. [1-4]. Service-oriented architecture (SOA) this is to loosely coupled,
protocol independent, standards-based distributed computing where software resources available on the network are considered as Services[3].

![Diagram](image.jpg)

Fig. 1. MDA Approaches Presented

Fig. 1, presented a model-driven approach to SOA modeling and designing complex distributed systems based on MDA. MDA separates the Platform Independent Model (PIM) from the Platform Specified Model (PSM) of the system and transforming between these models via appropriate tools. The PIM of the system is build and then the PSM based on SOA is generated. The final PSM based on a target platform is generated. A UML mobile business profile is introduced and a separation of the PSM layer into two parts which make the automated transformations from PIM to PSM to code easier to implement. By using of Java annotations, separation introduced on the PSM layer is reflected on the code layer.

2 Transforming SOA and MDA to Mobile Business Applications

2.1 Ideas

Ideally, inside a company, the various business and service models will be developed and maintained to to fit on the current status. Combining a service-oriented modeling architecture with MDA can add benefits to this. The organized set up of models and information on the stereotypes derived from the service-oriented architecture and select perspective. MS2Web solution for MDA our approach is positioned to take advantage of the unified modeling architecture which results from bringing these two key architectures together.
The main idea is that the PIM is not equivalent to a model of the problem. We give you the architectural model for many elements of the solution that may be incorporated in a PIM as long as they don't refer to a specific deployment platform as in figure 3.

The SOA-based PSM would be derived from the present PIM. Creating the PIM, this PIM is transformed -with a transformation tool- to another PIM based on SOA. Each class diagram in PIM for mobile business, a Service Manager is created that manages the Instant Services. When this PIM based on SOA is created, the PSM of the system can be created based on a target platform. Some operations applying on more than two models are more rare. Obviously the most apparent components in an MDA workbench are the precise tools composing this workbench.

2.2 Generating the PIM for Mobile Business

PIM for mobile business application is an abstract design of a computerized solution that do not contain any platform specific elements. The core of the platform independent model (PIM) is a UML model that is basically from use cases through classes, interactions, states and some UML elements to the components.
2.3 Translation from PIM to PSM

It uses MDA to automatically generate the tool and associated GUI in Java and J2EE (session bean) in order to deliver the essential embedded pattern and design guideline. Fig. 5 Explains the overall architecture for PIM to PSM translation. Allowing PSM based on SOA to the PSM based on mobile business Services using WSDL. This will be altered to WSDL Type and Port Type in the PSM and the limits of methods will be transformed to the Messages (Input or Output) in the PSM.

![Diagram of Overall Architecture for PIM to PSM Translation](image)

**Fig. 4.** Overall Architecture for PIM to PSM Translation

3 Conclusion

As Service Oriented Architecture (SOA) paves it way to the business world. The problems of modeling solutions based on SOA have been set to fix problems. Reinforced by the Supply-Manage-Consume, the different modeling of solutions and services is a good practice incorporated into advanced development processes that support SOA, including Select Perspective. Service Interfaces are shared amongst models showing the implementation and re-use of the services.

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