

Dynamic Compositions of Multiple Aspects in Web Service Aspect Oriented Programming with Business Process Executable Language

Arbab Kanwal¹ and Mr. Zubair Azhar²

¹Computer Sciences,
University of Agriculture Faisalabad,
Punjab, Pakistan

²Computer Sciences,
Senior IT Manager and Admin at Faisalabad Industrial Estate of Development and Management Company,
Punjab, Pakistan

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ABSTRACT: Now days, Web services plays a very important role in universal technology for distributed and heterogeneous application completed the internet. WS-BPEL is a general principle that executes basic deployment, and then it must perform the static analysis. An important use case for WS-BPEL is defining around the enterprise business connections in which the business processes of unique enterprise contact through the Web Service interfaces. Therefore, WS-BPEL facilitates the strongest ability to model the need of relationships between partner processes. Business Process Execution Language for Web Services (BPEL4WS) motivation on gathering existing web services into higher level web services. However, these type of standards demonstration some short comings about modularity and flexibility and reliability. In this paper, we support an aspect-oriented technique for web service composition and AO4BPEL, for present and future, an aspect-oriented extension to BPEL4WS. With aspects programming, we eliciting and analysis the web service composition in a modular approach and the composition becomes more easy and feasible for dynamic change.

KEYWORDS: Aspect Oriented Programming, Business Process Executable Language, WS-BPEL.

1 INTRODUCTION

The Web Services framework the paradigm of Service-Oriented Computing (SOC) scheme. In these application models offered different services that can be used to compose the WS-BPEL processes and also provides the better coordination in a loosely coupled manner. Web service BPEL composition does not involve the physical integration of all components: The basic components that involved in the composition still separated from the composite web service. The web services that is used to Enterprise Application Integration (EAI) [17] to specifying the composition of web services means that identify those operations that need to be involved and learn how to handle the exceptional situations. Many types of composition languages have been developed, in which the most important languages are those, WSCI, BPML and BPEL4WS. These languages are process-based and have their origins in Workflow Management Systems (WFMS). In this paper, we offer the solution of two major problems that occurred in Aspect Oriented Programming.

The aspect-oriented programming is a new methodology of programming that is used to increase the modularity by follow the rules of separation of cross-cutting concerns. In this paper, researcher described and explained the AOP-based performance evaluation framework for UML models. Basically, it divides the requirements of software in two portions functional requirements and non-functional requirements. But here it focuses on the non-functional requirements. It focuses on the performance to get better performance with the use of cross-cutting concerns. Evaluation Framework (APEF) work well and also provides the better performance. Software performance as a cross-cutting concern it does not target a number

of, it adjoin a multiple functional and non-functional elements. It using the Aspect Oriented Programming (AOP) for evaluating the better performance of software and also find the some limitations of the software. For the evaluation of performance, we are using the UML models. Then it ensures that AOP-based Performance then we improved the performance verification, time saving and development cost for the evaluation using the (APEF).

The internet has been emerged as a stable application platform. Those days has gone when internet was used to present static information only. Today World Wide Web has ability to provide highly interactive applications and services. Transformation of application development and deployment is growing from desktop to web. Over the internet, the applications are provided as Software as a Service (Saas). Due to SaaS over internet, the access has become independent of time and physical location.

We are using the Aspect-Oriented Programming (AOP) for the mutant criteria. The criteria include the test data or programs. It is used to finding the better testing. Aspect-Oriented Programming (AOP) provides the new code without changing the new code. It also provides the traversal concerns. AOP also provides the benefits of program based test and mutant test to guide the generation test data from OCL specification. OCL approach has the fundamental common faults can related to the test code.

Now days, modern business is rapidly increasingly to adopting the Service Oriented Architecture to become more cooperative to achieve latest changes in the market. Abject Oriented-Programming (AOP) and Model-Driven Architecture (MDA) have gained the considerable attention. In this paper researcher provides the quantitative approach to measure the uses of Model-Driven Architecture (MDA) [9] and Aspect-Oriented Programming [9] in service oriented environments [9]. It provides full grip to applying this usefulness techniques [9]. MDA plays a vital role in the environment of development processes. Applying the MDA techniques then we gained the better quality and efficient results with the use of automated techniques and also reusing the software's. The uses of both approaches we getting the simultaneously benefits. In this paper, researcher using the numerical approach to evaluate the implementation of the web services with use of both techniques. AOP and MDA techniques are much modular, encapsulated and also traceable.

In this paper, researcher tells that the usage of aspect in requirement engineering phase still is not suitable. In early stages, we have a tendency to explosion the Abject-Oriented Programming (AOP) to maps at the development stages. Unified Modeling Language (UML) is a standard modeling language. It expresses the overall processes of software development from requirement analysis to implementation and also testing. In this paper, researcher applies the demand engineering requirement for software development. Unified Modeling Language (UML) is used to purpose the way to detect to any type of aspect problem and resolve this problem among the mismatch aspects

In this paper, the BPEL approach is discussed at architecture and presentation level which will allow compositions of component's aspects. This could possibly aid other composition languages to determine composition with other interfaces. In this paper, proposed the solution of two shortcomings in Aspect Oriented Programming (AOP). First one is that lack of modality concern at runtime. Second, changing the compositions at runtime occurred in Aspect Oriented Programming.

2 LITERATURE REVIEW

Many researcher works to recognize the main benefit points of composition then get the better flexible and adaptive compositions in aspect oriented environment. Security is extremely popular topic in business, trade and academic surroundings. In this paper, researcher purpose the aspect oriented approach for dynamic enforcement of web services security. It is completely based on security between Abject-Oriented Programming (AOP) and modulation of web services. The major challenge of security occurred in legacy systems, it should be adapted to any type of network or web environments. In this era, web services and internet technologies give a successful business applications accessible through variety of network, the computer network may be a LAN, MAN, and WAN. Enforcement of web services security is one of the most important work in which the researcher's community has to performing the duties. Much type of standard languages has been used to enforce the web services. Many security features require in run-time verification of secure policies [13]. If any changes occur in the environment then it is able to remove or add web services, static and dynamic adaption. These type of processes are integrated (weaved) in Abject-Oriented Programming (AOP) process at run time. In web services, dividing the business and security issues and also developing them separately. It allows the modification of the web services, compilation at run-time to integrate and used to detect and modify the security concerns [1].

In this era, the OCL specification using to generate the test data and also overcome the limitations has obtained importance. Software testing is a fundamental idea for ensuring software quality. In this paper, researcher using the three techniques, first one is structural, second is functional, and third is fault-based. In which, each technique have the different test criteria, which facilitates the selection of test data and evaluate a test set. Each modified program is named a mutant

and provides a common fault. Test data are used to kill the each generated mutant and then it produce the result. We are using the Aspect-Oriented Programming (AOP) for the mutant criteria. The criteria include the test data or programs. It is used to finding the better testing. Aspect-Oriented Programming (AOP) provides the new code without changing the new code. It also provides the traversal concerns. AOP also provides the benefits of program based test and mutant test to guide the generation test data from OCL specification. OCL approach has the fundamental common faults can related to the test code [2].

Since last decade software industry plays a vital role but the quality of software is much important for quality package development. There are some techniques which are being studied to reduce the complexity of software for the purpose of complexity. Aspect-Oriented programming approach is a new paradigm that can help to reduce complexity by modularization of cross-cutting concerns [14]. Abject-Oriented programming is a so for goal approach but it does not guarantee to solves the problems completely. As a solution of this problem in this researcher purposes that technique of structural integration of that both object oriented and aspect oriented programs to overcome such concerns. After implementing this approach, during unit testing, the tester very much interested to attain the developed results. So the goal of integration testing is to test a unit by applying the unit interaction as possible as much [3].

The aspect-oriented programming is a new methodology of programming that provides the separation of issues between the applications code and non-functional mechanism. Especially, developers of aspect-oriented programming should only concern about their modules. The main hypothesis of aspect-oriented programming, in which entity (aspect) does not need to be inform the presence of other entities. In this paper, researcher purposes an approach to detect inferences in executable codes. Unluckily, unrequired inferences should be occurred when many entities are woven at the same join point of the base code. One entity can prevent the execution of another one entity or any type of base write variable and other one is read variable. Assertions are added in the entity chain to detect the many types of inferences. The all type of implementation is totally based on resolver construct. This type of technology is recently introduced in aspect-oriented programming. When the entities are developed independently, their actions on the other type of programs are mostly incompetent. Native hypothesis may be created regarding the behavior of one entity can be violated after the composition with other aspects. It provides an erroneous behavior. Aspect-oriented provides the two implementation applications, which one is prevention and second is detection. For using these approaches we easily debugging and detecting our aspects [4].

The aspect-oriented programming is a new methodology of programming that offer a native modularization unit that can effective to solve the code scattering and code tangling issues. These codes are caused by the by cross-cutting concerns. Aspect-Oriented Programming (AOP) provides a new techniques model the cross-cutting concerns that are very effectively and efficiently. Mostly work are computing in the implementation phase in Aspect-Oriented Programming (AOP) modeling. In which some works are described in early development and the current requirement engineering but it does not express the explicit cross-cutting concerns. In requirement engineering of software development, Aspect-Oriented Programming (AOP) is introduced to provide required model. In this paper, researcher tells that the usage of aspect in requirement engineering phase still is not sufficient. In early stages, we were using the Aspect-Oriented Programming (AOP) to maps at the development stages. Unified Modeling Language (UML) is a standard modeling language. It expresses the overall processes of software development from requirement analysis to implementation and also testing. In this paper, researcher applies the engineering requirement for software development. Unified Modeling Language (UML) is used to purpose the way to detect to any type of aspect problem and resolve this problem among the mismatch aspects [5].

In this paper, researcher purposes a security with the use of Aspect-Oriented Programming (AOP). Basically the Multi-level security (MLS) was developed by the US military in the 1970. It takes permission to the users to share the information between different classes of users. A secret military have planned to get different levels of secure information, in which if user wants to share information then it can be able to use this security level. It used the Bell-Lapdulla [6] security model to achieve the multi-level security in Aspect-Oriented Programming (AOP). Multi-level security (MLS) is a significant operation for military system, it provides the facility of many domains same like trusted operating systems. Multi-level security (MLS) permits the simultaneous access to the users to with different types of security concerns clearly defined, and also provides the prevention to users to how avoid to get unauthorized access. It avoids the user to do not get unsecure information using the business logic process. This type of aspect oriented approach provides the security at implementation level and also provides the facility of security at scattering code and tangling code. In this paper, researcher purposes the BPL (Business Process Logic) model to achieve the high level security in a multi-level security [6].

Aspect-Oriented Programming (AOP) is a favorite candidate to encapsulate the cross-cutting functionalities with the use of parallelization. It has been selected for run-time monitoring fault-tolerance and the fail over of the Aspect-Oriented Programming (AOP) architecture. Due to the duplication between Abject-Oriented Program and also the base program,

Aspect-Oriented Programming (AOP) technologies have been worked fast and trying to apply run-time monitoring in software development and also in fault-tolerance. In Aspect-Oriented Programming (AOP) parallelization, multi-core technologies are widely applied. It is very powerful and understandable work to expand the how much to take full advantage of the powerful multi-core platform for parallel computing to reduce the bundle of outcomes of weaving code. In this paper, researcher using the two types of parallel techniques to achieve the parallelization with very easily and efficiently. First technique is library-based and second is language based. These are used in Aspect-Oriented Programming (AOP) to get special type of structure for parallelization [7].

Aspect-Oriented Programming is a very important step of modeling aspects. This type of paradigm is already applied in aspect-oriented programming architecture and then it provides the better area of concurrency, replication, coordination and also distribution. Aspect-oriented programming is a featured that used in modeling to trying concerns issues to gained and modify with the use of cross-cutting, which all aspects include in aspect-oriented programming system. In the view of researcher, in aspect-oriented programming modeling few researchers' works on design and few works on constraints and some of them works on applications. In aspect-oriented analysis on an aspect oriented design achieved the better measurement modeling. If we find cross-cutting at first stage of software development then we use then modeling with them. It may be a good discovery of designers to resolve conflicts in first stage. It makes the more reusable components with the use of automatic code creating, if it much possible. It is too much important to measure the use of aspect oriented modeling in aspect oriented programming design and analysis phase. UML (Unified Modeling Language) technique supports the new type of methods. UML is an extensible modeling language to provide the facility of domain specific modeling. In this paper, researcher using the extensive techniques to improve the performances of aspect-oriented programming in software development phase [8].

3 INTRODUCTION TO BUSINESS PROCESS EXECUTABLE LANGUAGE

A Business Process Execution Language (BPEL) process is based on import and export functionality by using the interfaces solely. BPEL method relies on import and export particularly by strongest composition language that based on workflow. In BPEL, Business processes can be categorized in two different ways. In a business interaction, executable business process model provides the behavior of participants and abstract business process are little bit verifying the processes that are not need to be executed. Abstract business process plays a descriptive role with multiple use cases and including the observable behavior and template. In [11] Web Service Business Process Execution Language is using the both [12] Executable and Abstract processes. It specifying the interoperable integration model that simplified the growth of mechanized.

4 MAJOR TWO LIMITATIONS OF WS-BPEL

BPEL includes two major limitations:

- Lack of modeling concern at runtime.
- Changing the composition at runtime.

4.1 LACK OF MODELING CONCERN AT RUNTIME

This type of problem mentioned in introduction, web services compositions of ranked modularization according to the aggregation connection between connected business processes might not be more applicable modularization pattern for attributes of the composition that statement misgiving such as classes of services, business rules, authentication, exception handling, auditing, and access control.

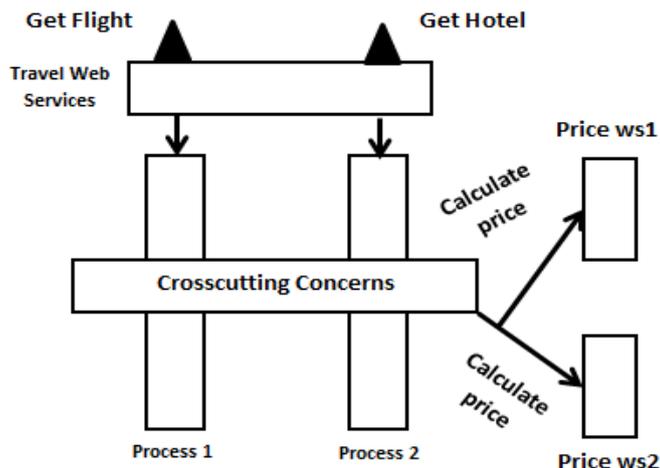


Figure 1: Web Service Composition service based

Let us take the example of simple travel service shown in Figure 1 describe that how the code containing of these concerns of cut around the margin and is not be modularized. Vertical bar is represented by the BPEL process in Figure 1. Our example web services of travel provide the facility of two operations GetFlight and GetHotel. Several market segments provide the composite operations in the production of web services.

4.2 CHANGING THE COMPOSITION AT RUNTIME

When a BPEL process is implemented, the BPEL files of all the services taking part in the composition should be known and only once a process has been implemented, there is no any technique to change it dynamically. The only tractability in BPEL is dynamic partner binding. It provides the static view of traditional workflow in management system, in which the processes and compositions are merged together.

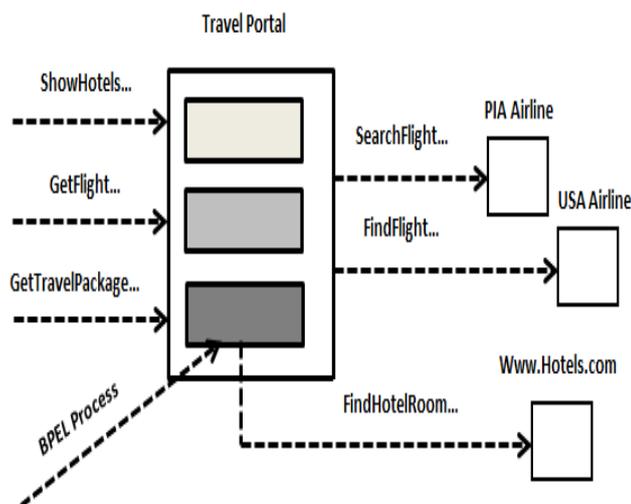


Figure 2: Changing the Composition at runtime

To define the misgivings, let us take an example of a travel agency portal in which aggregates or composed the information from partner web services like airline companies and hotel chains. The final result of travel portal is briefly described in Figure 2 with composite operations. Each relation describe the business process in BPEL and the functionality of GetTravelPackage composite two airline and hotel web services.

5 DRAWBACKS COMPOSITIONS

- If we stopping the working of web services may demand a loss of users.
- Exceptionally in Business to Business situations, one composition operation may possibly run very long and in which may avoids us from stopping it. If we stop the all running instructions then we should restore or give back all last function activities.
- Change of the composition representation on case by case starting point top to all types of exceptions.
- Ad-hoc root are required for advance business processes.

6 CONCLUSION

In this paper, we purpose the BPEL technique for web service compositions with base of modularity and dynamic adaptability. Work flow management systems are not able to provide the highly nature of web service compositions for overcome the problem of change compositions at runtime execution. We using the BPEL approach to improve the modularity and increase the availability, adaptability of web service compositions. Our main purpose to enhance the context of aspect oriented programming between BPEL aspects and base processes.

7 FUTURE WORK

We need to enable the dynamic composition or dynamic changes with the help of semi-automatic generation and web semantics ontologies.

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