

Chapter 80

Service Evolution in Clouds for Dementia Patient Monitoring System Usability Enhancement

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ABSTRACT

The authors present an analysis which concludes that most e-health system are packaged for large-scale access through cloud-based services shared in a real-time service deployment environment. The service, which has already been deployed in the clouds for e-health construction, needs to instantly change itself in order to enhance the usability for the patients, especially for the dementia patient monitoring system. The evolution for the service in cloud-based systems can be driven fundamentally based on the service function improvement, quality of service improvement, and service collaboration improvement, which can greatly enhance the usability of the dementia patient monitoring system and dynamically enlarge the life-cycle of the current service system in clouds without replacing the reusable service components. The quality of service evolution of the dementia patient monitoring system is essential because the system reliability and instant messaging sending ability is needed in the dementia patient monitoring system. The system should be as reliable as possible for its undertaken the people's life and healthy ensure for all those who use the system.

INTRODUCTION AND MOTIVATION

Evolution Patterns mainly focus on service inventory re-organization and re-composition, service security enhancement and service accessing database bottleneck re-balance as the contribution of our approach. In this chapter we will provide the

detailed design of these patterns by using use case diagrams, activity diagrams and class diagrams in different angle of view as the adequate description for each pattern. The detailed design for each pattern can be further refined based on particular case study background and each pattern can also have different edition for its problem-oriented

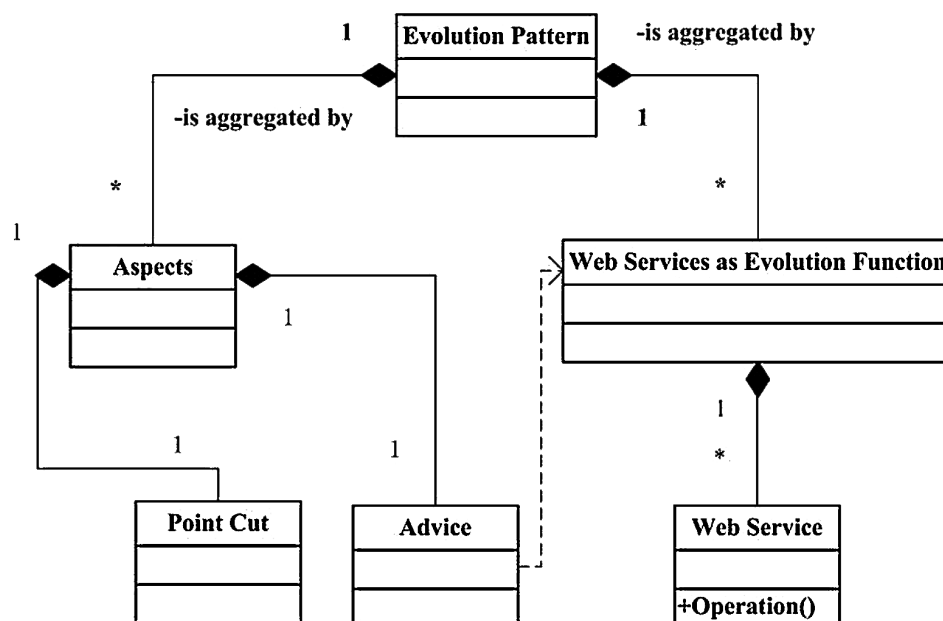
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feature. The evolution pattern also obeys the critical rules defined by software engineering which we proposed in this approach, which is feature oriented model driven product line approach. The approach started from evolution feature modeling and finished at aspect weaving. During the whole process the evolution pattern is always the core element that bridges the gap between evolution analyses to evolution realization. As we proposed in the first place that all the evolution patterns can be extended, reused, re-created for its problem-oriented feature and resulted as the problem solution, so that the process of evolution pattern must also obey the critical software engineering approach from use case design to detailed design before code generation by MDA model. The evolution for service collaboration ability in the dementia patient monitoring system is needed because different people need to working together to achieve the patient care in the e-health background. People using or accessing the service in clouds can be achieved using a variety of devices, such as pc, laptop, phone or server. Different people in different locations holding different equipment need

to work together through accessing the service in clouds, the service in clouds should be evolved to enhance the collaboration ability for people's collaboration activity through the service. In the dementia patient monitoring system, people's collaboration activity is quite adequate to verify the value the service collaboration evolution. [Wang, Kevin & Liu 2012, 2013, 2014]

The service pool construction has been observed to be achieved by a general process as the aspect weaving activity. If the operations exactly answer to the process, we can have the increased number of services to expand the function of the service pool. It is the process of how SaaS is in a position to tender non-limited function and ability for the consumer when the service is constructed corresponds to SaaS construction. The construction and deployment of web service has been successfully performed in three ways, one of which is to utilize the current open source code or already deployed service and invoke it through its published URL, the other is to construct the code from original by ourselves, and the last one is that we can combine the two methods together.

Figure 1. The general evolution pattern UML model



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