Migration of Existing or Legacy Software Systems into Web Service-based Architectures (Reengineering Process): A Systematic Literature Review

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Abstract

In this study, the techniques of migrating legacy software systems into web service-based architecture has been discussed. This procedure is carried out based on the fact that software and business companies want to migrate along with previous systems, to a more recent technology, which are of higher benefit to both businesses and their client. With the above issue in mind, this study executed a systematic literature review to look into the various techniques that were existing in published literatures or articles and come up with a comprehensive summary that highlighted their strength and weaknesses for future improvement.

This research obtained it’s publish articles or literature by exploring two popular publication sources. Namely, IEEEExplore and ScienceDirect. We considered including article or literatures that were published within the past ten years (2005 – 2015) and with definite keywords that were used as search queries to obtain the articles from the aforementioned repositories. The seventeen (17) selected articles or literatures were then processed based on certain inclusion criteria, by considering existing methods of migrating legacy software systems into web
service-based architecture.

The accomplished systematic literature review has provided a classification of legacy software migration methods and has highlighted the fact that each of the methods has at least one advantage and disadvantage that are seen as benefits of each of those methods. The method types used were then categorized as either analytical or wrapping methods. In the case of analytical methods, the migration process is performed by examining the existing legacy software system to distinguish how the migration process can be carried out with limited bottlenecks. Whilst inside the wrapping method, the migration is done by directly wrapping the source code of the existing system to generate web services. The advantage of Analytical methods is a structured migration process and its disadvantage is the required effort needed to carry out the process to obtain best results. The advantage of the wrapping methods is the possibility to obtain very quick results and its disadvantage is that the results are highly dependent on the effectiveness their algorithms.

References


Index Terms
Computer Science
Software Engineering

Keywords
Legacy software migration, web service-based architecture, wrapping techniques, analytical techniques