An Analysis of Rapid Application Development of AJAX based Rich Internet Applications

Nalaka R. Dissanayake[#1], G. K. A. Dias[#2], Mahen Jayawardena[#3]
[#]*University of Colombo School of Computing, UCSC Building Complex, 35, Reid Avenue, Colombo 7, Sri Lanka.*

[1]nalakadmnr@gmail.com, [2]gkad@ucsc.cmb.ac.lk, [3]mcj@ucsc.cmb.ac.lk

***Keywords*— Software Engineering, Rich Internet Applications, AJAX, Rapid Application Development, Designing**

INTRODUCTION

With popular applications such as Google and Facebook enabling a very feature rich experience, users expect to feel the same richness in other web applications they consume as well. As an open source technology, AJAX plays a major role in Rich Internet Application Engineering. But its adoption within Rich Internet Application engineering is complex and difficult due to various reasons. Rapid Application Development is a methodology which can be used to produce such applications rapidly with the use of Computer Aided Software Engineering tools. In this paper, we try to interpret the current status related to difficulties and complexities of Rapid Application Development of AJAX based Rich Internet Applications and suggest possible solutions to be investigated in subsequent work.

A. AJAX

Overcoming the problems of traditional Web Applications such as slow performance and limited interactivity, the concept of Rich Internet Applications (RIAs) were introduced. Asynchronous Javascript And Xml (AJAX) is a well-known script based technique for developing RIAs. AJAX has developed, standardized and improved, making it more suitable even for the enterprise use. AJAX has already become a popular and well used technology for developing RIAs; and it's a powerful approach for building RIAs, even though it is rather complex to set up. But if its complexity can be realized and overcome, AJAX will be a better technology out there, for engineering RIAs.

B. Rapid Application Development

Software Engineering process today tends to be supported by Rapid Application Development (RAD) methodologies due to the reason that all the stake holders engaged in the development process, like to see a quality output with a rapid development. RAD is an approach to build systems which combines Computer-Assisted Software Engineering (CASE) tools and techniques, user-driven prototyping; and stringent project delivery time limits into a potent, tested, reliable formula for top-notched quality of finished product. RAD is supported by powerful CASE tools which makes it possible for developers to create systems much faster than ever before; and the success of any Rapid Application Development project is primarily dependent, upon the tools used.

C. Difficulties and Complexities of AJAX

Talking about the downside, the complexity of the AJAX adoption is marked as high. By analysing the ideas of experts and researchers, we realized that the AJAX based RIAs engineering is hampered by some complexities. From the analysis, we have extracted the following facts.

- AJAX's principle is complicated and the realization is quite difficult.
- When design and develop AJAX RIAs, need to think in a different way.
- Implementation of AJAX features in an existing system is difficult too.
- Average developers are not capable of handling the difficulties engaged with implementing multiple AJAX features in a complex project.
- Massive applications of AJAX easily lead to serious redundancy of code, and increase the chance of unexpected mistakes, which can slow down the process.
- The MVC code is not clearly separated in AJAX based RIAs.
- Realization of rapid and convenient frameworks and tools is practically significant in AJAX engineering.
- When selecting these tools such as frameworks, need to be careful; they can generate a new level of complexity.
- And we think all these issues are related to the fact, that there is a lack of a coherent and precisely described set of architectural formalism for AJAX enabled applications; which makes the AJAX development is difficult, and support the RAD methodology inadequately.

D. Conclusion

To reduce the complexities and support RIA engineering, researches have introduced frameworks and some new architectural styles as solutions. Architecture plays an important role as a one of the dependency factors in RAD. To reduce the development confusions it's important to have a complete system design based on a strong architecture. Having a good design, combined with proper CASE tools, it may facilitate RAD adequately. Applying this general knowledge to AJAX based RIAs, we convey if the design is based on a sound architecture – which delivers a better abstract realization of the AJAX adoption – then the real meaning of the RAD can be achieved. Based on that knowledge we propose that a general hybrid architecture would address the difficulties in AJAX based RIAs by providing a higher realization with a minimum learning curve.