A CONCEPT OF BALANCED-CLIENT FOR RICH INTERNET APPLICATIONS

N. R. Dissanayake[1], G. U. Liyanage[2] and G. K. A. Dias[3]

[1] University of Colombo School of Computing, 35, Reid Avenue, Colombo 7, Sri Lanka.
Email: nalakadmnr@gmail.com
[2] Informatics Institute of Technology, 57, Ramakrishna Road, Colombo 6, Sri Lanka.
Email: Upeksha1996@aol.com
[3] University of Colombo School of Computing, 35, Reid Avenue, Colombo 7, Sri Lanka.
Email: gkad@ucsc.cmb.ac.lk

ABSTRACT

The Rich Internet Applications engineering is marked as complex and difficult, since they lack of architectural formalism. If we can identify the separation of the modules clearly and generalize the architectural structure in Rich Internet Applications, it might increase the realization of the system, hence reduce the complexities and speed up the development too. We propose an architectural structure based on Model-View-Controller pattern, which describes the separation of the logic; and the distribution of the modules and related components; between the client and the server, which we expect to specify as a standard and balanced layout, we name it the "Balanced-client", referred to the concepts of Thin-client and Thick-client. We expect to incorporate this concept to design a general architectural model for Rich Internet Applications, to provide a good realization, which can addresses the complexities in Rich Internet Applications engineering.

***Key words*:** Rich Internet Applications, Thin-client, Thick-client, Model-View-Controller

1. INTRODUCTION

With the increased popularity of the script-based approach – against the plugin-based approach – and the asynchronous communication techniques like Asynchronous Javascript And Xml (AJAX) [1] [2], the use of JavaScript (JS) and related technologies have been increased [3] in Rich Internet Applications (RIAs) development.

Traditionally in classical web applications, the business logic and other algorithms were developed using server-side languages and the executions of these components or modules were done in the server-side, where only the results were sent to the client. This architectural concept is called the thin-client, since the client-side development was limited [4] [5].

In some web applications development, the business logic along with other algorithms are taken more or completely to the client-side and developed with JS-based or plugin-based technologies like Adobe Flash/MS Silverlight [6]. This approach is called thick-client, where most or all the components are loaded to the client-side and the execution is done in client's browser [5].

With the asynchronous communication mode in RIAs, the concepts of thin-client and thick-client lose their boundaries, as in the same app both client and server side development contain high amount of algorithms and processing. The RIAs have a scattered logic [7] and lack of standards; and the complexity of RIAs is high where the design and the development is difficult [8].

2. METHODOLOGY

We have conducted a literature survey to gain the domain knowledge in the fields of RIAs, Web Architectures and Architectural patterns. We identified the relationships of these fields within the domain and noted the difficulty factors and complexities engaged.

A cross-sectional survey was conducted to identify the correlation between the difficulty level and the number of rich features per page. Targeted population was the individuals engaged in RIA engineering. For data gathering a structured questionnaire with closed end questions was used. Gathered data were analyzed and the results were derived using statistical methods.

Parallel to the surveys, we conducted a series of experiments to gather the empirical evidence in the domain. These series of experiments used a prototype based incremental development, where