A WEB-BASED INTERFACE FOR A HIGH PERFORMANCE

COMPUTING SYSTEM

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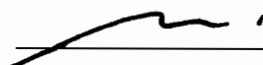*(candidate for the degree of)*   **MSc. (IT)**

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ABSTRACT

High performance computing systems (HPCS) target to execute software whether this software is a simple or complicated one. Most of HPCS should have an interface to enable software owners to upload their files to be installed by the HPCS administrator. The interface should be extensible to work together in the future with the other remaining parts of the complete system. Also it has to be divided into phases in order to make development easier and also to make those components reusable. It is the best option to make the software a platform independent one. To achieve that, J2EE (Java 2 Enterprise Edition) should be chosen to implement this interface and also free licensed and open source software have to be chosen such as Tomcat Jakarta server, MySQL to be used in the development phases. All of the previous recommendations are applied in this research prototype. On top of that, the interface prototype has been tested on local environment and has achieved the expected results. This report passes through all phases to have a proper web interface to be used for a HPCS.

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LIST OF ABBREVIATIONS

J2EE	Java To Enterprise Edition
HTTP	Hypertext Transfer Protocol
JVM	Java Virtual Machine
VM	Virtual Machine
IDE	Integrated Development Environment
JSP	Java Server Pages
EJB	Enterprise Java Beans
HPCS	high performance computing system
UML	Unified Modelling Language
WAP	Wireless Application Protocol
ISP	Intenet Service Provider
PUEU	Perceived Usefulness and Ease of Use
SPSS	Statistical Package for the Social Sciences
WWW	World Wide Web

CHAPTER 1

INTRODUCTION

This chapter briefly explains the background of the study that mainly involves the importance of the web interface for a "high performance computing system" (HPCS) (G. Y. Yongwei Wu, 2003). The problem statement, objectives, significance of the project and scopes will also be introduced.

1.1 Background

Software techniques are not enough to improve scalability and performance issues (Victor P. Holmes, 2000). As a result, computation power will not be increased depending only on those techniques, because of that, a HPCS such as "cluster system" (G.J. Jense, 1997), "parallel processing system", or "Grid system" (Jordan, 2006) is needed to achieve that purpose and they are considered as hardware or physical techniques. As an example, Grid computing has been emerged as an important new field by its focus on large-scale computing and resource sharing (Grid, 2007). This technology provides integrated approaches to the coordinated use of resources at multiple sites for computation.

HPCS including supercomputers, clusters, Grid systems or other super computing instruments can be integrated into a virtual computing facility to provide supercomputing services for clients through a web interface (component) (Yongwei Wu, 2003). A web

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