UNIVERSITI TEKNOLOGI MARA

DESIGN OF A PRIORI THREAT PREVENTION EMBEDDED IN IN-HOUSE APPLICATION

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Report submitted in partial fulfillment of the requirements for the degree of

Master of Science (Information Technology)

Faculty of Computer and Mathematical Sciences

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STUDENT'S DECLARATION

I declare that the work in this report was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as reference work. This report has not been submitted to any other academic institution on non-academic institution for any other degree of qualification.

In the event that my report be found to violate the conditions mentioned above, I voluntarily waive the right of conferment of my degree and degree to be subjected to the disciplinary rules and regulations of Universiti Teknologi MARA.

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ABSTRACT

As application grow in size, complexity, and heterogeneity in response to growing computational needs, it is increasingly difficult to build a system that satisfies all requirements and design constraints that it will encounter during its lifetime. Furthermore, many of these systems are required to run continuously, disallowing downtimes while code is modified. As a result, it is important for an application to adapt in response to new requirements and environmental conditions after it has been deployed. Due to their high complexity, adaptive and autonomic systems are generally difficult to specify, design, verify and validate. Embedded Audit Module (EAM) is modules code built into application programs that are designed to capture audit-related information on an ongoing basis. EAM provides the ability to capture data changes within a system. The implementation of the audit module in in-house developed information system can lift the burden from IT auditor and database administrator in managing the sensitive data and to track and monitor any unauthorized database transaction. This study, therefore, offers an attempt to design a priori threat prevention embedded in in-house application system. In order to achieve the aim of this research, the verified requirements for Embedded Audit Module were generalized. Lastly, the design of EAM was proposed. The processes involved were identifying and planning the research, data collection and lastly design the EAM according to the requirements captured. This research has produced the Software Design Document to communicate the design of EAM. The design of EAM produced can be used in order to lessen the threat towards the in-house developed information system and reduce the work to be done by IT Auditor and DBA.

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