The Design of Learning Management System with Embedded Broker

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ABSTRACT

This study proposes a learning management system with an embedded Broker with load-balancing function. The proposed system structure allows for both the integration of learning resources and balance of network traffic. Moreover, it also provides stable quality of teaching materials and lowers the cost of construction. The Sharable Course Object Reference Model (SCORM) consists of the Learning Management System (LMS) for processing learners' basic background, learning data, and records of learning and Learning Content Management System (LCMS) for managing and storing course resources. Embedded LCMS Broker is provided with the function of distributing LCMS load-balance in cross platforms and also is served with common communications between systems and enhances the capability of integrating learning resources. The proposed system structure not only conforms to the SCORM standard which is proposed by ADL but also improves the SCORM configuration from single learning system to separated structure and further integration of the learning management system with load-balancing function. Besides, this study uses the Embedded Broker to replace other high-level servers in order to lower the cost. This study will also explore and compare the performances of five different SCORM learning system structures, and finally provide a more stable learning environment with lower cost of construction.

Keywords : SCORM ; LMS ; LCMS ; Embedded Broker ; Load Balance ; Embedded System

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