

ABSTRACT

Sharing Quality Assured Reusable Learning Objects on a Peer-To-Peer Network with Security Controls

Rajendra G. Singh

There are many centralized repositories for sharing digital learning content, most of these allow for structuring and storing learning content using international eLearning standards, in an effort to produce reusable learning content and promote sharing. There are also several Peer-to-Peer (P2P) digital repositories in existence; however in contrast, these are mainly used for sharing digital files such as music and video files. The existing set of P2P digital repositories were not originally and purposely designed for sharing learning content and as such are not well suited in the same way that the centralized repositories are for storing and retrieving learning content for instructional use. Further, the attempts to design P2P eLearning applications for sharing learning content has not produced software that is available for use by any general group of Internet-based users.

The thesis therefore asks the question: Is it possible to share learning content on a P2P network to achieve similar goals as in client/server eLearning systems?

Using the Feasibility Study Method in Computer Science, a prototype P2P eLearning System is designed and developed in an attempt to answer the question. The primary outcome is a system which includes a P2P repository model developed to facilitate sharing of standards-based Reusable Learning Objects (RLOs) specifically designed for P2P network sharing. It also includes security controls based on readily available technologies to facilitate sharing amongst any general group of Internet-based users.

Additional features include a process for achieving quality assurance of the learning content in P2P architectures, and the ability to aggregate and sequence RLOs stored in the repository into courses, which can be automatically generated into two formats of eBooks. One format can be used on personal computers and the other as an APP on mobile devices.

The conclusion answers the thesis question with a "Yes!"

Keywords: Rajendra G. Singh; eLearning; Learning Object; Learning Object Repository; Peer-To-Peer.