

Abstract

The purpose of this project is to develop and implement an alternative examination for Information Technology subject at *Sijil Pelajaran Malaysia* (SPM) level. This implementation will involve development of an interactive web based examination and deployment of a Virtual Private Network (VPN) to enable the candidates taking the examination security. This on-line examination is proposed to replace the existing multiple-choice examination system in Section A of Paper 1, with a computerized examination questions that can be accessed through the Internet and responses to the questions can be forwarded through the same medium. Such a proposal brings about a host of technologies that will ensure its success. Firstly, web server programming technology provides a lot of useful functions that increase examination management efficiency. It enables retrieval of data from database that can be manipulated to perform a defined task such as candidate's authentication, comparing question items with the matching answers and produce examination results promptly. Secondly, Internet technology offers a new medium of communication connecting remote sites through computer network. The Internet provides public data communication services with excellent speed, minimum cost and beyond geographical barriers. On the other hand, as a public network, the Internet is exposed to a number of threats such as packet spoofing and eavesdropping. Finally, to secure the on-line examination, a creation of virtual private networking within the Internet is proposed to connect the examination provider and the examination centers where candidates sit for their examination.

Virtual Private Network (VPN) is a technology that creates a secure tunnel to route data packet by deploying protocol encapsulation and encryption. VPN establishes a control session between the two ends of the connecting sites. Data traverse in a defined route. As encryption is applied to the packet, it is thus meaningless to third parties who may want to intercept the packet.

All implementations will give opportunity to create an alternative and secured testing and probably a new approach to assessing examination candidates on their knowledge for the Information Technology subject at SPM level.