ABSTRACT

After the COVID-19 pandemic hit the world, significant changes occurred in the activities of the world community, especially in the field of education, resulting in a transition from face-to-face conventional learning methods to online learning using e-learning services. Another impact after the COVID-19 pandemic is the Entrance Screening Exam (USM) process at one of the educational institutions in the city of Cimahi, which must change its offline exam activities to online, so that Institution X requires an e-learning system with high-availability capabilities, which can increase and reduce system requirements (scalable) and can be relied on in online exam activities (reliable). The implementation of a load balancer and auto scaling system using cloud computing on e-learning services at Institution X has successfully answered the need for a system that is always available, scalable, and reliable. The implementation of the auto scaling and load-balancing systems provides an availability rate of up to 100%, a maximum CPU usage of 35.4%, and a system failure rate of 0% with a total of 708 participants in the Entrance Screening Examination (USM) for the June 2022 period.

***Keywords:** eLearning, Moodle, Auto scaling, Load balancer, Cloud Computing*