

Cybersecurity Virtual Laboratory for distance learning

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ABSTRACT

In the conditions of distance learning of university students, there is a problem of practical and laboratory work organization. This is especially true of technical universities, where training in ordinary conditions is carried out on real equipment and using specialized software. In this regard, there is an urgent need to create a virtual laboratory, as an effective platform for distance learning students.

CCS CONCEPTS

• Applied Computing • Networks

KEYWORDS

Cybersecurity, Virtual laboratory, Education, Distance learning

1 Introduction

Currently, it is extremely important for universities to continue training highly qualified specialists in the field of cybersecurity, regardless of the prevailing conditions of the global pandemic. One of the most effective solutions is the creation and deployment of the Cybersecurity Virtual Laboratory (CVLab) for distance learning, which will help to ensure continuous quality training for future experts [1]. However, the creation of CVLab requires server hardware, without which the practical and laboratory work is impossible. In conditions of a quarantine, distance learning for security professionals without practical and laboratory work is useless. Consequently, the CVLab must be developed and implemented in the educational process as soon as possible.

2 CVLab Advantages

The main expected result of the CVLab will be the rapid provision of a virtual distance learning platform, through which full-fledged

student learning will be provided. Such a virtual platform will contain all the necessary tools, software, as well as recommendations for performing laboratory and practical work in basic training courses such as Network & Cloud Security, Secure Software Development, Malware Analysis, Web Security, Penetration Testing and Ethical Hacking, Digital Forensic.

The main benefits of the CVLab are following:

1. *Ease of use and implementation in the educational process.* After installing CVLab, students can perform practical and laboratory works both on the server and on their personal device.
2. *Versatility and efficiency.* Due to the fact that CVLab will include training courses that are part of the basic curriculum in the field of cybersecurity, this virtual platform will be able to cover most universities in which students study in this specialty.
3. *Availability.* CVLab courses will be publicly available. Students and teachers can use this virtual laboratory for distance learning in the field of cybersecurity.
4. *Sustainability.* Using CVLab is an effective tool for distance learning not only during the global pandemic, but will be useful in the educational process during any period of student learning.

3 Conclusion

The main aim of the CVLab is help in overcoming the logistical difficulties that can be determined when the hardware for practical and laboratory works is not accessible and continuity of education in the presence not guaranteed. The use of CVLab will allow to simulate the operation of equipment and specialized software.

REFERENCES

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